



FRIDAY, JANUARY 27.

Tank Locomotive: London, Brighton & South Coast Railway.

We give this week a perspective view, with elevation, plan and cross sections, of the small six-coupled tank locomotives which Mr. Stroudley has so successfully employed on the London, Brighton & South Coast Railway for working the local passenger traffic of that line. We are indebted to *Engineering* for all these engravings, excepting the perspective view. Next week we will publish details and a description from the same source, with some comments on Mr. Stroudley's engines.

The Spuyten Duyvil Accident.

The investigation of the accident at Spuyten Duyvil on the New York Central & Hudson River road was in progress over a week before Coroner Merkle, of New York, and a jury of very unusual standing and intelligence. It consisted of the following gentlemen: Egbert L. Vielé, Charles H. Haswell, John Peyser, D. H. McAlpine, Henry J. Davidson, L. E. Schmieder, W. H. Weightman, Henry Eichling, Francis J. Burke, Edward Hauser, L. T. Howes and J. Teichman. Several of the names will be recognized as those of engineers of standing.

The evidence tends to show that the stoppage of the express train was caused by some person pulling the cord which set the automatic brake. Who did this will probably not be

known certainly, but it was probably done in the smoking car, where a half-drunken party were having a "good time."

The evidence is probably best summed up in the findings of the jury, which seem to be well supported by the evidence. The Coroner charged the jury as follows:

The primary cause of the accident to the express train was the pulling of the air-brake rope by some person, either frivolously or accidentally, who had, if frivolous, no idea of the danger in which he placed his fellow-beings. The safety of the train and its passengers devolves on the railroad company, through its employees. Did the company take adequate precautions to secure the safety of its passengers? Were the rules for the guidance of the employees sufficiently clear? Were the employees faithful in the discharge of their duties, and, if they had obeyed and carried out the rules and regulations could this calamity have been prevented? The vicinity where it occurred is considered, according to the testimony of Mr. Toucey, the most dangerous point of the road. The rules and regulations, as printed and explained to you, are in plain language and imperative on every employee. Rule 53 makes it a duty of the rear brakeman to signal trains approaching from the rear. I take the liberty to fix your attention on the testimony of Mr. Valentine and other witnesses that the brakeman stood still and leaned on the rear of the Idlewild with his lanterns in his hand and moved toward the incoming train when the noise it created was distinctly heard, and then he first moved from his position, and ran, according to that testimony, only about 50 feet. Hanford testified that when he alighted from the train he saw Melius running back. The same rule makes it specially imperative on the conductor to see that the brakeman performs his duty. It is your province to say if Hanford, instead of satisfying himself that Melius, the brakeman, had done his duty in protecting the rear of the train, was not violating his duty by omitting to give him directions; but, on the contrary, as his testimony shows, he endeavored to protect the train in front, where no danger could possibly be anticipated. It is for you to say if Hanford is not just as guilty of gross negligence as Melius. There cannot be much doubt that the train stopped there ten minutes or even more, and if the brakeman and conductor had done their duty the accident would not have occurred.

The jury deliberated over its verdict only about an hour, and then returned the following unanimously:

First—That George Melius, the rear brakeman of the Chicago express train, was guilty of wilful and culpable neglect in not going immediately to the rear of his train a sufficient distance to warn an approaching train, according to the rules of his company, which he had ample time to do; and that said George Melius is directly responsible for the loss of life that followed such neglect.

Second—That George F. Hanford, conductor of the Chicago express train, in not going in person immediately to the rear of the train to see that the rear brakeman did his duty, and in not replacing the rear trainman by another

trainman, as directed by the rules of the company, is responsible for the loss of life that followed such neglect of duty.

Third—That Edward Stanford, engineman of the leading locomotive, in persistently endeavoring to draw the train after the brakes had been applied, neglected his duty, and is responsible for the loss of life that followed such neglect of duty.

Fourth—That Archibald Buchanan, engineman of the locomotive immediately attached to the Chicago express train, in persistently endeavoring to draw the train after the brakes had been applied, and in neglecting to cut off the escape of air from the air chamber on the locomotive as soon as the brakes were applied, thus depriving himself of the power to release the brakes, neglected his duty, and is responsible for the loss of life that followed such neglect.

Fifth—That Francis Burr, engineman of the locomotive of the Tarrytown special train, neglected his duty in not keeping a proper look-out in passing from the Spuyten Duyvil cut, failing for this reason to see the signals of danger in time to check the speed of his train, and is responsible for the loss of life resulting from such neglect.

Sixth—That John M. Toucey, Superintendent of the New York Central & Hudson River Railroad Company, in neglecting to provide efficient safeguards against accident at the most dangerous part of the road—namely, the Spuyten Duyvil cut—and in formulating a schedule of time for the passage of trains that permitted a rate of 20 miles an hour on a sharp curve through a high, precipitous cut, in which it is impossible to see more than 50 ft. ahead for a distance of 600 ft. is responsible for the loss of life that followed such neglect and such schedule.

Seventh—That the officers and managers of the New York Central & Hudson River Railroad Company, in neglecting to provide suitable instruments for the rescue of passengers in danger and proper means for extinguishing fires on the trains, and in not establishing the competency of its employees by proper mental and physical examinations to test their qualifications for the responsible and critical duties imposed upon them, is responsible for the loss of life that followed such neglect.

The jury further finds that each and every of the persons named is responsible in his own individuality, no one sharing the responsibility with the other. And as a further expression of their opinion, the jurors affirm that with the experience of 50 years of railroad management, and with the



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appliances in general use for the prevention of like disasters, there appears to be no palliation whatever for the criminal carelessness and disregard for human life exhibited by the employees of the company.

The conduct of these employees removes this calamity from the chapter of accidents, making the result of destructive agencies at work as much a certainty as the discharge of a piece of artillery. The only surprise is that the slaughter was not greater. It could not well have been less. As a still further expression of their opinion on the evidence, the jurors feel it fitting to express their reprehension of the practice of the promiscuous distribution of free railroad passes during the session of the Legislature, believing it to be demoralizing in its tendency and an incentive to unseemly conduct, by encouraging free excursions between the capital and the metropolis.

The jurors deem it their duty to urge the immediate and thorough protection of the whole line of the Spuyten Duyvil Branch road at all the road and street crossings within the city limits.

The jury regarded the use of a cord attached to the valve of the air-brake in the passenger cars as attended with more elements of danger than safety, and as complicating the use of an already complicated appliance, believing that the strap running through the cars and connecting with the engine is a safer reliance against accidents. The jury regarded the use of candles in lighting the cars to be attended with less danger than oil, and that they answer all necessary purposes.

The jury further find that George Melius, George F. Hanford, Edward Stanford, Archibald Buchanan, Francis Burr, John M. Toucey and the New York Central & Hudson River Railroad Company are guilty of causing the death of Webster Wagner, Park Valentine, Louisa Valentine, Mary L. Brown, J. Albert Richards, Oliver B. Keely, Francis Marchal and Darling L. Ransom, by criminal means and culpable negligence in the performance of their several duties connected with the said New York Central & Hudson River Railroad Company, in so far as by such inquisition the jury has been able to ascertain.

Contributions.

Adjustment of Grades to Curves.

JERSEY CITY, Jan. 5, 1882.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Referring to the very valuable paper by H. G. McClellan, Chief Engineer N. & O. R. R., on "Adjustment of Grades to Curves" in the *Gazette* of Dec. 2, I should like to ask where he begins and ends the grade reduction for curvature—whether exactly at the beginning and ending of the curve or at some point beyond them, as Mr. Wellington suggests.

Also what reduction he would consider proper on a standard-gauge road compared to his 3 ft. gauge.

C. D. WARD.

The Westinghouse Brake at the Spuyten Duyvil Accident.

WATERTOWN, N. Y., Jan. 17, 1882.

TO THE EDITOR OF THE RAILROAD GAZETTE:

The recent accident on the New York Central & Hudson River Railroad at Spuyten Duyvil, resulting in the horrible death of eight persons, having been found primarily due to the going on of the Westinghouse automatic brake at an unreasonable time, we think it may be properly discussed by us in your columns, although we cannot say that we are entirely unprejudiced in the matter.

This "creeping on" of the above-named brake is a particularly dangerous feature, and is of frequent occurrence upon all roads using it. The writer, during the past year, has been witness to many delays from this cause. We have noticed it particularly upon the New York Central, that being the nearest line to us using the Westinghouse brake. An instance occurred on the night of Jan. 2 last, on the "First Atlantic." The brakes went on, on the sleeper Nantucket, some miles west of Palatine Bridge, but as the train was a heavy one and drawn by two engines, it was dragged into the station before stopping. There was a delay at Palatine Bridge of fourteen minutes before they succeeded in finding the car with the brakes on and releasing them, and when the train finally started the fact was developed that there was a flat spot on some of the wheels to so great an extent as to nearly extinguish the lights in the car by the jolting, when moving at a slow speed.

We think that it is due to ourselves that we should here state that since the elevated railways of New York have been in operation several minor accidents have occurred; and where there has been a collision, it has been almost invariably telegraphed all over the country that "the vacuum brakes failed to operate," that being the usual and natural excuse offered by the engineer. We have taken particular

pains to investigate these reports, and have found invariably that the officers of the road have taken immediate steps to try the brakes at once after the accident, to forestall the engineer's report that "the brakes didn't work." They tell us that they have always found the brake operative. It is not strange if they should have a high opinion of our brake after it has made over thirty millions of stops without a single recorded failure.

EAMES VACUUM BRAKE CO.,
CHAS. D. BINGHAM, Secretary.

Action of Hydraulic Cements Upon Embedded Metals.

PHILADELPHIA, Jan. 21, 1882.

TO THE EDITOR OF THE RAILROAD GAZETTE:

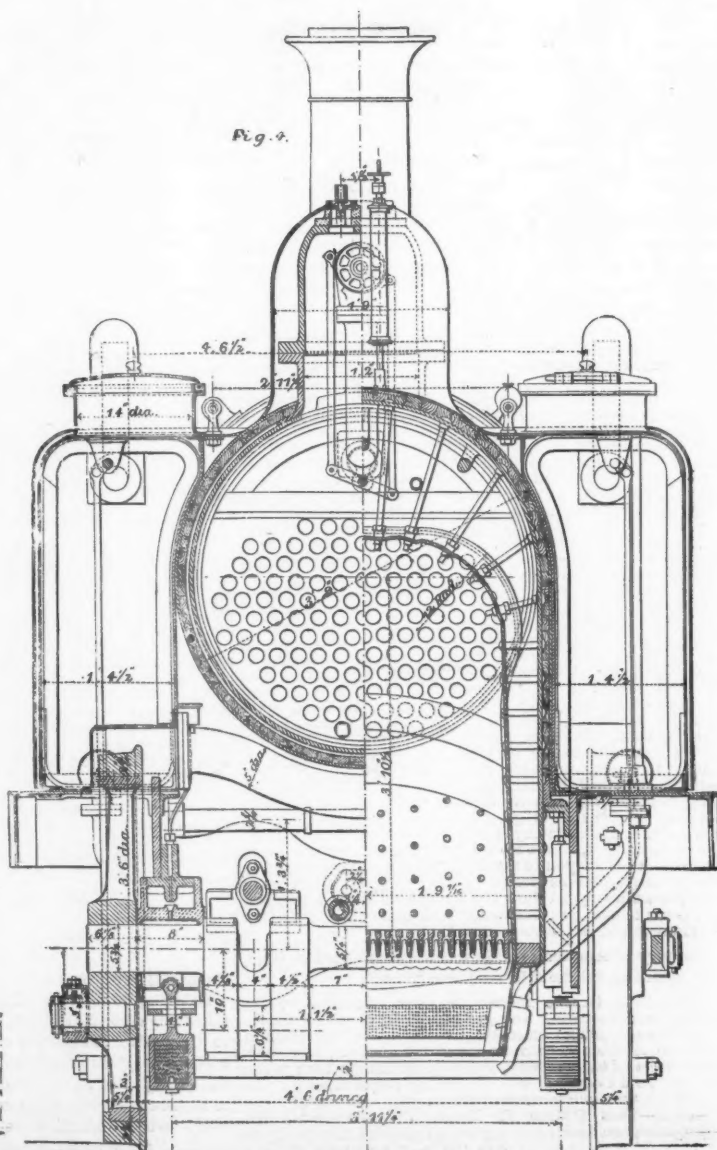
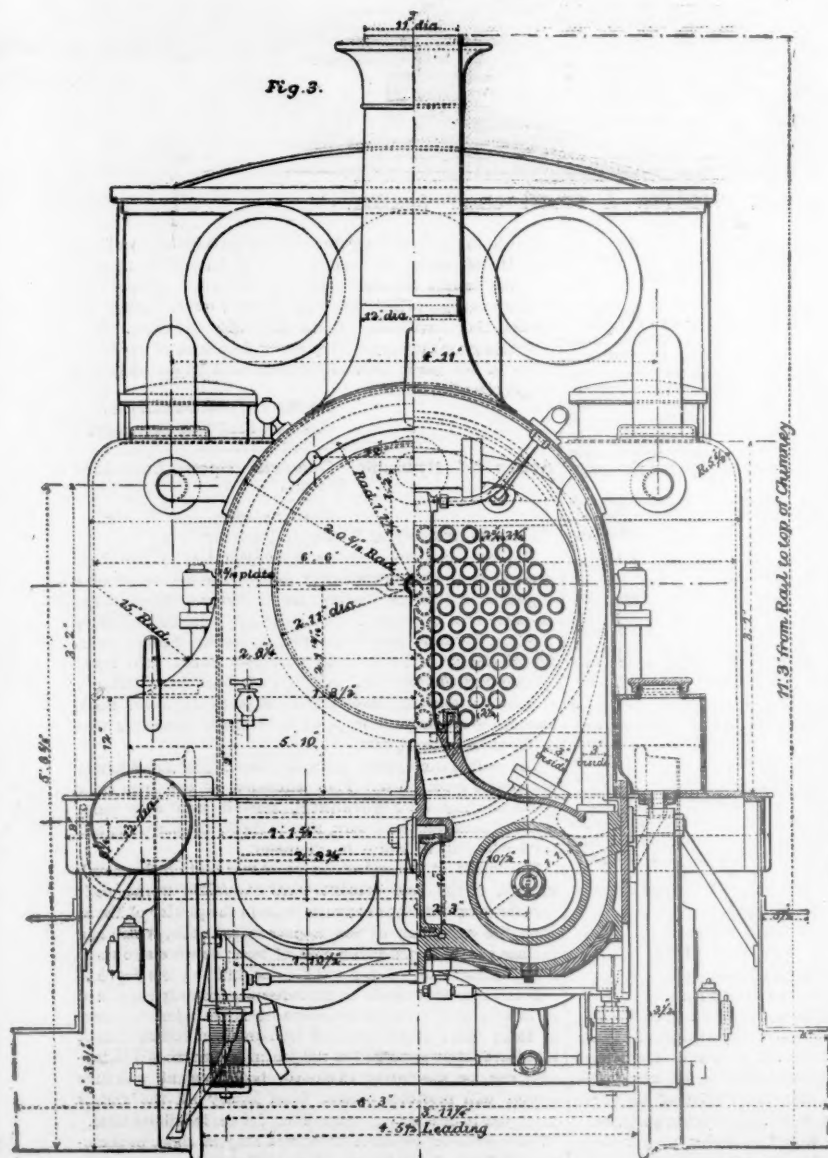
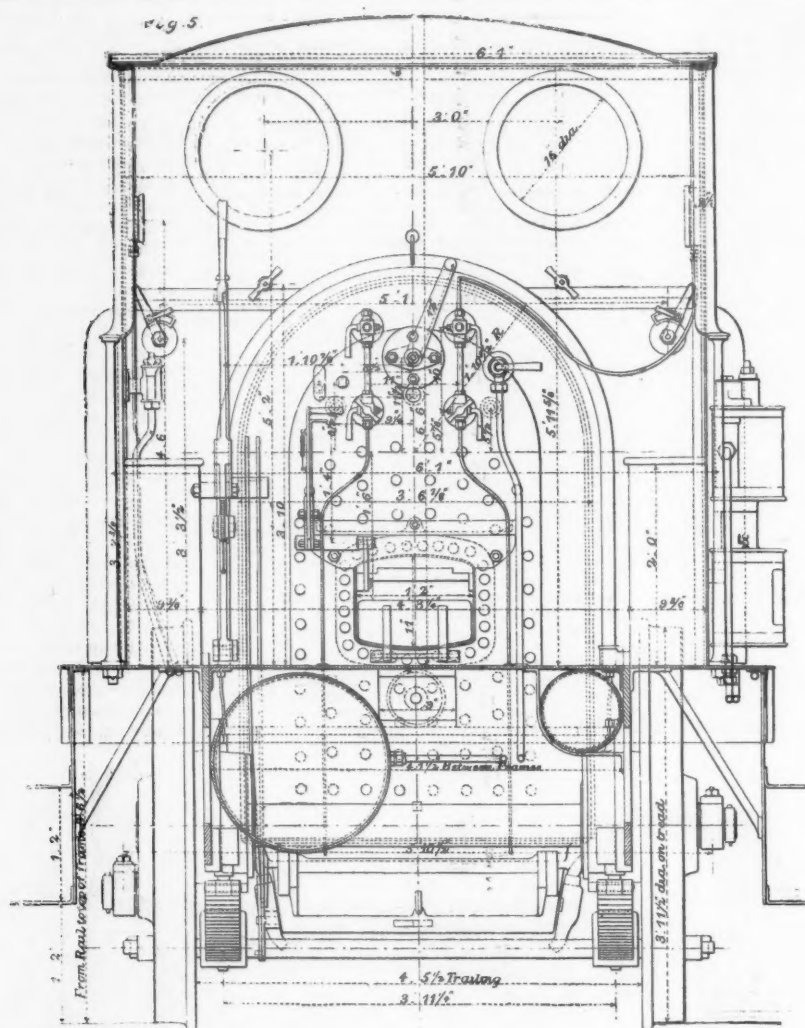
The fact that this important subject has of late been brought somewhat prominently before the notice of civil engineers and builders induces me to send you the results of 10 years trial by myself. The hydraulic cements used were English, Portland and Louisville, Kentucky, besides which I tried plaster of Paris, both pure and mixed with equal measures of the cements. All were of about the consistency of common mortar; and all were kept in an upper room during the ten years, unexposed to moisture other than that of the indoor atmosphere.

The metals were partly embedded in the pastes and partly projecting from them. They consisted of cut iron nails (some of which were galvanized), smooth iron wire nails, brass in both sheet and wire, zinc in sheet, copper wire, and solid cylinders of lead $\frac{1}{8}$ in. diameter.

The result at the end of ten years was that all the metals in both of the neat cements were absolutely unchanged; and the same was the case with those in the plaster of Paris, with the exception of the ungalvanized nails, which had become covered with a thin coat of rust; as were also those in the mixtures of plaster and cement, but to a less degree.

This experience leads to the inference (already suggested by others) that moisture or dampness is the injurious agent in those cases of corrosion of iron and lead laid in cement that have lately appeared in the journals; and that if dampness can be absolutely excluded, both cement and lime mortar will probably protect from injury all the metals employed in ordinary constructions, for an indefinite time.

Such entire exclusion of dampness may at times be somewhat difficult of attainment; for capillary attraction alone (unaided by hydrostatic pressure) will cause water to rise



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several inches in well-hardened cement; and it would be difficult to assign limits to its penetration when aided by a high head of water. Rain water is well known to percolate through many feet in depth of brick work or masonry laid in lime mortar, even when it consists partly of cement.

JOHN C. TRAUTWINE, C. E.

Petticoat Pipes.

CEDAR RAPID, Ia., Jan 14, 1882.

TO THE EDITOR OF THE RAILROAD GAZETTE:

In your issue of Jan. 6 a query is raised respecting petticoat pipes and their effects on combustion, through the remarks of a correspondent of the *Locomotive Engineers' Journal*. The correspondent in question was running a locomotive having a smoke-box 45 in. diameter, and within this box was placed a petticoat pipe 40 in. long. The nozzles were raised 4 in. above the bottom of smoke-box. When the petticoat pipe was placed even with the top of the nozzles there was insufficient draft to make the engine steam, but raising the pipe improved the steaming properties but cut up the forward part of the fire. The question was, how could this be remedied?

The object of the petticoat pipe in a locomotive smoke-box is to regulate the suction of the exhaust so that the gaseous products of combustion will pass evenly through all the rows of tubes. If the petticoat pipe be too low, leaving a wide space between the pipe and the bottom of the stack, this space will draw the gases through the upper rows, as that is the shortest way to the stack. If the petticoat pipe, on the other hand, be too high, the easiest journey for the gases will be through the lower rows into the bottom of the petticoat pipe, consequently they will perform over work. To strike the true mean between high and low is to find the proper position and the one that will give the best results in steam-making, because it is then making all the tubes contribute their full evaporative functions. An observant engineer can tell that his petticoat pipe is at fault from its effect on burning the fire. If it is just rightly set the fire will be burned even, and an average fireman will experience no difficulty in keeping a level fire. Should the pipe be too low, the fire will be dug out from the back end of the grates; while, on the other hand, should it be too high, the error of position will be indicated by the forward part of the fire wasting away more rapidly than the back part. The direct line of draft to the upper rows of tubes is from the back part of the grates, while the bottom rows draw most readily from the forward sections.

The trouble with the petticoat pipe which started this question, probably, was in being too long. Two or three inches cut from the top end would give the upper rows of tubes a share of the blast suction. But setting a petticoat pipe is not such a simple matter as it is generally supposed to be. Dimensions and positions that will give excellent results in one engine often fail utterly with a second engine of the same size and make. A slight change of diameter, an extension or contraction of the flare, half an inch elevation or depression will often effect a wonderful change on the steaming qualities of a locomotive. The whole subject is indifferently understood and has not received a fraction of the attention its importance merits. The petticoat pipe is the best device that has ever been invented for equalizing the blast, yet the philosophy of its action appears to have been deemed below investigation. ANGUS.

[Our correspondent is right in saying that the above subject is one which needs investigation. The difficulty is to find a person qualified for such work who has the time to devote to it. Experiments, unless made by some competent person, would probably not increase our knowledge.—EDITOR RAILROAD GAZETTE.]

Congressional Railroad Regulation.

[From the Thirteenth Annual Report of the Massachusetts Railroad Commissioners.]

The Appendix shows that the number of hearings before the Board greatly exceeds that of any previous year. But the various decisions reported give little idea of the questions coming before the Commissioners. The informal hearings and conferences, which are not published, very largely exceed those which appear in the report. And in aiding to settle these matters, the Board, perhaps, performs its most useful duties. It is the general object of the Commissioners, in making their annual report, to set forth the work done during the year with such explanations and comments as the facts demand. But one subject, lying far beyond the jurisdiction of this Board, has been so generally discussed, and is so important, that we feel justified in briefly expressing our views in regard to it.

It is impossible to consider the matters of interest relating to railroad policy in any state without regarding it in connection with the policy and practice of other states. And this year the question of congressional regulation of interstate traffic has been widely discussed.

1. The chief demand for national legislation has come from those who desire that Congress, under its constitutional power to regulate commerce among the several states, should fix the rates of transportation, and thus secure moderate charges.

2. During the "war of rates" a desire has been expressed that, for the protection of stockholders, and for the guarding of the public against the fluctuations and the high charges which follow low ones, Congress should so regulate railroad transportation as to prevent competing and excessively low rates.

3. Some of the advocates of the pooling or federation system have recommended national legislation, in order to sanction that system and to give it the support of the courts of law.

As to the last proposition, it is enough to say that pooling contracts, or agreements for federation, may now be made, and will be enforced by the state and federal courts unless they are held to be so manifestly contrary to public policy as to be invalid at common law. There seems to be a general misapprehension on this subject. One of the most intelligent discussions of the question speaks of "the absence of

any legal or governmental restraint against the violation of the agreements as to rates." But all governments restrain all violations of all legal agreements, and give penalties for such violations. Again it is said that "before railroad confederations acquire stability they must have the prop of some external power." And still again it is said of pooling arrangements, "so long as their existence has no legal sanction, and their edicts no binding power, etc." Now, this either assumes the illegality of such arrangements, or it is an error. Corporations, as well as individuals, may make contracts; and it is one chief end of government to enforce lawful contracts. The state and national courts are open to any railroad company that has been injured by the violation of any contract, or that seeks the specific performance of such contract.

It would at first sight appear strange that Congress should be invited to enter upon a new course of legislation in order to legalize contracts which are so plainly against public policy that the courts will set them aside as illegal or immoral. If it be said that pooling contracts are really not against public policy, but that they are for the public good, it would seem to be easier to convince a small body of enlightened judges of this fact, rather than to persuade a majority of Congress, whose views will to some extent depend upon those of their constituents.

A practical objection seems to exist to the second class of legislation proposed. The constituencies of our law-givers would not be quick to see the advantages of legislation to prevent the lowering of freights and fares. They would not look with approval upon the assumption of a new and doubtful jurisdiction with the avowed design of keeping up rates. And their representatives would, to a large extent share that feeling; and it is not unlikely that such a proposition would have a different result from that proposed.

The most popular proposition, without doubt, is that which calls for congressional action to reduce and equalize rates and fares in traffic between states.

The constitutional question is not settled. Congress has, in so many words, power "to regulate commerce with foreign nations and among the several states." But it is not quite certain that the power to regulate commerce includes the power to fix rates for all common carriers, which involves the setting aside of contracts between persons or corporations, or the settling of the terms of all their contracts for them. The states have this power, as has been held in more than one case by the Supreme Court of the United States. It has even been held that the state may determine that certain fixed rates are reasonable, and that proof that they are in fact unreasonably low cannot control the statute rates. This has been decided by a majority of the United States Supreme Court; and it is therefore law.

Some of the states, like Massachusetts, have reserved the power to alter or repeal charters, either expressly or by reference to general law. But this power, founded in express contract, is distinctly reserved to the state Legislature, and has never been transferred to any other sovereignty. It would be a strange perversion of words to hold that reserving a power to a state confers it upon Congress. It has also been held that this power is given to the states by common law, as to all carriers. But it is well known and long settled, that the United States have no common law. And it does not seem quite clear that constitutional authority to regulate commerce transfers this power from states to the United States. It is said that the word "regulate" is broad enough to include everything that can be enacted as to interstate commerce. But the question is of intent; and there are many reasons for doubting whether it was ever intended to give to Congress the power to fix the charges of coasters, baggage-wagons, coaches, and the like, traveling from one state to another. Such were the common carriers of those days, and by such means was commerce among the several states carried on. It is to be remarked that the same clause applies to commerce with foreign nations. But for nearly a hundred years of government under the constitution, no proposition has ever been made that Congress should regulate the contracts of affreightment made at New York or New Orleans for Liverpool, by reducing, or equalizing, or fixing in any way, the charges for freight. There have been times when such charges were high, and when relief was desirable. The fact that it never was proposed, although not of great weight, would tend to show that the power was not believed to exist.

Graver considerations apply to the policy of congressional regulation. The first consideration is the immense power which Congress is asked to assume. The cost of the railroads already constructed exceeds five billion dollars. The value of the articles transported over them each year is incalculable; and the amount of annual gross earnings is counted by hundreds of millions. More than half of this great business is interstate traffic; and it must be remembered that not only the trunk lines are to be subjected to the regulation of Congress; it will include the branches which feed these lines. Goods leaving any town on the coast or in the interior of Massachusetts, on their way to Chicago, or New York, or Providence, or Nashua, are as truly objects of "commerce among the states," as the grain of Dakota, or the cattle of Texas, on their way to an eastern seaport. It is now proposed that Congress should take charge of this vast business, regulating especially the rates of freight, and thereby practically determining, not only the profits of each road, but what points shall be commercially favored and developed. It would be an enormous and a dangerous grasp of power. Supposing that Congress is now perfectly free from suspicion, that no member has ever been influenced by "fear, favor or hope of reward," taking it for granted that the methods of the lobby are always pure and the motives of legislators are above reproach, still it is plain that the virtue of future members might be exposed to temptation from this unprecedented trust, that a new element might be introduced into elections and members might be chosen to represent roads and routes and ports which sought the favor that could be given by regulation. One object of the proposed legislation is to protect individuals and communities from the power of railroad kings and monopolists. Is it not possible that these too powerful men might find means to influence Congress which humbler individuals and small communities could not use?

The vast increase of the patronage of the United States government is only an incidental disadvantage of the new project.

A manifest danger lies in the chance of combination between interests and states and sections, to the injury of other interests and localities. It must be remembered that regulation, if it is assumed at all, is without condition or limit. The claim is that the full power which belongs to each state may be exercised by the federal government. Now one power of the state, as affirmed by the highest legal authority, is to arbitrarily fix the rates of freight, of elevating grain and of warehousing. When Congress exercises this power, it can and will decide what ports and what states are to be discouraged and hindered in their commercial enterprises. There is a possibility that favor and disfavor might be influenced by political feeling. There have been times in the history of this country when such a power would have been exercised to punish an offending section. But without looking forward to any such danger, or to any such motive, it is plain that self-interest, real or supposed,

might easily lead to combinations which would favor one section at the expense of another.

There are commercial theories which would endanger the interests of certain ports and states, which would say, in effect, to one place, "This business does not naturally belong to you, and you shall not have it," instead of leaving the distribution of trade to the natural laws of trade.

This possibility is not an imaginary nor a far-distant danger. More than once action has been proposed for Congress which would destroy the export trade in grain now enjoyed by Boston and render of no avail those terminal facilities, completed and proposed, from which so much has been expected. The proposition, and a very popular one, is to impose a fixed rate of so many cents per mile on all east-bound grain and other produce. And this proposition, which is contrary to all railroad policy, would so discriminate against Boston that her export trade would almost cease. How absurd the proposition is, and how it violates the natural laws of trade, appears from the well-known fact, among others, that cotton has been transported from Memphis to Lewiston, via Montreal, in successful competition with more direct routes. But it is referred to here only as an illustration of the possible and probable effect of Federal regulation upon local interests.

The New York anti-monopolists have heretofore dwelt upon the injustice to their city resulting from the fact that Boston business was favored by a tariff from the West equal to theirs; and they have furnished testimony to show that Boston business was built up at the expense of New York by a failure to tax its freight as it should have been taxed. It is true that they also complain that Philadelphia and Baltimore are allowed part of the advantage of their comparative nearness to the West; but the inconsistency of the two complaints furnishes no guaranty for the justice of legislation, which sometimes depends upon numbers more than upon reason.

Even the more moderate propositions pending before Congress are dangerous, because they call for the exercise of a new power, and will lead to additional and dangerous legislation. The exercise of power is in itself pleasant. The temptation to add to it is great. And when Congress begins to manage the railroads of the United States, it is likely to grasp new details every year. Such centralization is perilous to the government itself, and to each portion of the country. Whether all our railroads are managed by Western and Southern grangers, or whether they are controlled by a few railroad kings, we shall have reason to regret the time when each state managed its own railroad affairs.

It should be remembered, in considering this question, that the existence of an evil is not positive proof that it can be remedied by national legislation, or by any legislation, or even that it can be wholly remedied in any way; and care should be had that the remedy may not prove to be more dangerous than the disease. We cannot know the full extent of the evils and dangers of the proposed system; but we do know the full extent of the evils that result from the present system. Whatever may be the dangers of consolidation, of unrestricted competition, or of combination and federation, the business community has felt them all, and business has survived in spite of them; it has even flourished. Traffic has increased to a wonderful extent, and rates have diminished in a way that seems incredible. Mr. Poor's tables show that from 1855 to 1880 the number of tons of freight carried on the Pennsylvania Railroad increased from 365,008 to 15,364,788, and the number of tons carried one mile increased from 102,171,312 to 2,298,317,323. (Introduction to Poor's Manual, p. 44.) Statement IX., p. 47, shows that on seven Western railroads the number of tons carried increased from 12,303,084, in 1870, to 36,363,790, in 1880; and the number of tons carried one mile increased during the same period from 1,599,320,549 to 7,134,247,668; while the rates per ton per mile decreased from 2.227 cents to 1.69 cents.

Mr. Nimmo, in his valuable report on the cost of transportation for the year 1881, gives a list of railroads on which the tonnage carried has increased from 45,557,002 tons, in 1873, to 78,150,913 tons, in 1880—an increase of 71.5; while freights increased only 28 per cent, owing to a decrease of 39.5 per cent. in rates. Another table in his report shows the increase of tonnage and decrease of rates on three great roads, as follows:

	Tons transported.	Average charge per ton per mile.
1868.....	11,193,120	2.153 cents.
1880.....	36,363,714	0.8669¢ "

Thus it appears that the traffic in thirteen years was more than trebled; while, with due allowance for currency values in 1868, freight charges have been reduced 60 per cent.

These figures are quoted, not to show that the operation of these roads, or of any roads, is faultless or incapable of improvement; but they may help us to remember that the operation of our great railroads has not been wholly disastrous to the business of the country, and therefore to consider whether the chances are that congressional management would be an improvement on the present.

A proposition recently made by an able and intelligent Chairman of the Railroad Commissioners of Kentucky is interesting as showing how far business interests have broken down old political prejudices. His scheme is that a national railroad commission, with plenary power to settle without appeal all questions of interstate traffic, should be made up of the Chairman of each state commission, with a chairman of a national board, appointed by the President, from the District of Columbia. In this board, with only one member, Delaware is to equal New York in authority, and the vote of Florida would counterbalance that of Pennsylvania. Such centralized power will not soon be conferred by Congress upon any body of men. But such a position, coming from such a quarter, shows how widely the idea has extended that federal guardianship is needed for railroad companies carrying on interstate traffic.

The best influence which Congress can exert toward lowering the rates of freight is in legislation improving the navigation of the Mississippi, and other great lines of water communication. These furnish natural competition with railroads, and impose a desirable check on railroad rates. If any section finds its share of traffic diminished by such action, it can bear such reduction, sustained by the idea that what honestly benefits one section is a benefit to the whole; while every one can see that the development of a cheap transportation route furnished by nature is very different from an arbitrary rule favoring one locality to the disadvantage of another.

While the Board has no desire to see the railroads of the country managed or regulated by the national government, it does seem desirable that state lines should be obliterated, so far as can be done by agreement and by state legislation. Connecting roads running through several states should be regarded, as far as may be, as one road; and every facility should be given for harmonious management. No one, we believe, objects to such national legislation as the act of July 15, 1866, authorizing roads to connect with those of other states, so as to form continuous lines for transportation. One restriction hindering such union now exists in this state, in the clause which prevents our railroad corporations from aiding in the construction of branch or connecting roads in other states. The words "within the limits of the commonwealth," now forming part of section 87 of the General Railroad Act of 1874 (section 80 of chapter 112 of the Revision), hinder action, on the part of our railroad companies, which might be

beneficial to the stockholders and the public, and which with the other existing limitations, would not be dangerous to either. In the same spirit, and regarding the same end, viz., the harmonious and united operation of connecting roads without making state lines a barrier to progress, no good reason seems to forbid the purchase and holding of stock in a railroad company of another state, whose road is directly connected with any of our railroads, subject to like restrictions as to amount as now apply to aid for new construction.

THOMAS RUSSELL,
EDWARD W. KINSLEY,
CLEMENS HERSCHER,
Railroad Commissioners.

Dec. 14, 1881.

Minnesota Railroads in 1880-81.

The St. Paul Pioneer-Press publishes the following statements from advance sheets of the Minnesota state railroad report:

The annual report of W. R. Marshall, State Railroad Commissioner, of the condition and operations of the railroads of the state for the year ending June 30, 1881, with some supplementary information to the close of 1881, is in the hands of the state printer, and from it the following extracts are given: The reports of the several companies show in the aggregate an increase of traffic commensurate with the general prosperity and increase in population and production of the state. The unprecedented snow blockades of many weeks' duration in 1880-81 on the railroads in the southern and western parts of the state entailed great expense in the efforts to open them, while at the same time all revenue was cut off by suspension of business, making a poor showing in the way of net earnings.

The following table shows the business of the year ending June 30, 1881, compared with the year preceding:

	1879-80.	1880-81.	Increase.
Miles of road operated, average for the year.	2,903	3,140	147
Total stock.	\$182,303,328	\$187,802,243	\$5,550,095
Total debt.	107,249,442	143,114,220	35,864,778
Minnesota's proportion stock and debt.	100,169,532	118,348,622	18,178,500
Gross earnings.	10,774,826	13,921,339	3,146,513
Net earnings.	4,170,425	5,280,923	1,110,498
Tons of freight carried.	3,934,380	5,121,598	1,187,218
Miles run by passenger trains.	1,915,591	2,595,417	679,826
Miles run by freight trains.	4,183,465	5,939,698	1,756,143
Passengers carried one mile.	77,145,888	115,860,791	38,714,902
Acres lands sold.	506,951	381,587	*125,364
Total receipts from lands.	\$1,175,368	\$1,133,564	*\$41,804

* Decrease.

The increase in miles of railroad operated was about 5 per cent. The increase in gross earnings about 30 per cent., and in net earnings about 27 per cent. The increase of tons of freight carried about 29 per cent. The sales of lands is the only item of business that shows a decrease. This was largely compensated for by sales in the last half of 1881, as shown in the land tables elsewhere, the Manitoba Railway Company alone selling 47,695 acres, and receiving in cash \$87,983, in the six months ending Dec. 31, 1881. All the railroads of the state have been greatly improved during the year reported by relaying track with steel rails and new iron, and by other betterments. During the year there were 179 miles of new railroad completed in the state and nearly as much more is graded or under way. The total number of miles in operation, Dec. 31, 1881, is 3,278.

The state revenue derived from railroad taxes for the calendar year 1880 was \$323,143, an increase of \$74,000 over 1879. For the year 1881 it will approach \$400,000. This tax will in the near future be sufficient to pay the interest of the state debt, including the lately refunded state railroad bonds, and also to pay all the ordinary executive, judicial and legislative expenses of the state government. Direct taxes will be required only for the educational, charitable and penal institutions of the state. One of the most important functions of this office is to insure the full amount of this revenue. The question of whether rentals are part of the gross earnings of a railroad on which state tax is to be paid is before the courts for a decision, in an amicable suit against the St. Paul, Minneapolis & Manitoba Company.

The following are the totals of railroad taxes for the years 1878, 1879, 1880, and for the first seventeen years:

1878.	1879.	1880.	For the first 17 years.
\$200,171.12	\$249,354.09	\$323,443.10	\$1,749,143.92

There were 17 persons killed on the railroads during the year, and 249 persons injured.

There were 17 persons killed on the railroads during the year, and 249 persons injured.

The report concludes as follows:

"In closing my connection with the office, it seems proper to speak briefly of the views which have governed me in its administration. I came into office when railroad enterprises were paralyzed and the general prosperity of the state at a low ebb; when there was great animosity among the people toward the railroads. I felt it my duty to do everything I could to allay irritation and to keep the peace between the people and the railway corporations, to the end that our large agricultural territory might get more roads. After an almost total suspension of railway construction in the western and northwestern states for three years (1874 to 1876), Minnesota was the first to resume building roads, and kept in the lead for several years, until we had, substantially, a complete system of trunk lines. There is to-day hardly a cultivated farm in the state from which the farmer cannot drive to a railroad station and return in a day. I believe that the avoidance of legislative interference with rates, and the administration of this office in a way to encourage the further investment of capital in railways in this state, has had an appreciable influence in this progress and development. Now that we have so many powerful corporations competing for business, we are assured that branches and cross lines almost indefinitely will be constructed, giving in a few years to every locality the benefits of active competition and the lowest practicable rates. The proposition has been made at almost every session of the Legislature to establish some sort of pro-rating, so that the long and short haul should pay more nearly the same. If such a rule is just and profitable on a small scale, or in one state, it should be so on a large scale, or in all the states that lie between Minnesota and the great markets.

"This, indeed, is what the people of the state of New York have long contended for in respect to through and local rates. They want the New York Central to make a higher through rate on Minnesota and other Western states' produce, and a lower rate on the local state business. If this principle were generally adopted it would be ruinous to Western producers. In a recent work of Joseph Nimmo, Chief of the United States Bureau of Statistics, he states that 'the freight charges from Chicago to Boston, 1,000 miles, on one year's subsistence of grain and meat for an adult working man, is but \$1.25, or less than a day's wages.' This may seem incredible, but when we remember that the freight on a barrel of flour from Minnesota to New York or Boston, a distance of 1,400 miles, is often as low as 60 cents, we readily comprehend the fact. (One barrel of

flour and one barrel of pork are reckoned sufficient for one man for one year on the average.) Mr. Nimmo's report shows that the competition of the great trunk lines and of water routes caused a decrease of 89 per cent. in freight rates from the West to the East in the ten years between 1870 and 1880, while the decrease in the market price of twenty-two of the most important necessities of life was but 12 per cent., showing that the cost of transportation in getting produce to the ultimate market has decreased more than three times as much as the price of the produce—a showing that ought to be encouraging and satisfactory to the Western producer.

"If we look to see what the net earnings on capital invested in the railroads of this state are, we shall see that the average is but about 8 per cent. I refer to these facts that our people may take them into account in estimating the benefits on one hand while dwelling on what are thought to be high local rates of transportation on the other. There are in the nature of things some evils and local and individual inequalities attendant upon the management of our railroads. So far as these have been brought to my attention I have diligently sought to remedy them, and I think, in most cases, successfully. I have done this with as little noise and friction as possible.

"In conclusion I have to say that I think the laws and policy of the state in these matters as wise and profitable as is likely to be attained."

ANNUAL REPORTS.

The following is an index to the annual reports of railroad companies which have been reviewed in previous numbers of the present volume of the Railroad Gazette:

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Delaware.

This company owns a line from Delaware Junction, Del., south to Delmar, 84.25 miles; the Smyrna Branch, 1.25 miles; a branch from Townsend to Massey's, 9 miles, and one from Seaford to the Maryland line, 6 miles, making 100.5 miles. The Massey's Branch is leased to the Queen Anne's & Kent, and the Seaford Branch to the Dorchester & Delaware, leaving 85.5 miles worked. The road is leased to the Philadelphia, Wilmington & Baltimore for 30 per cent. of the earnings; the lessee pays all interest and 6 per cent. dividends, a deficit in any year to be repaid from the earnings of future years. The report is for the year ending Oct. 31, 1881.

The Treasurer's account is as follows:

Stocks.....	\$1,468,940.48
Bonds.....	650,000.00
Bills payable.....	35,429.48
Interest, dividends, current accounts.....	67,255.12
Total.....	\$2,221,625.08
Road and branches.....	\$2,134,959.56
Sinking fund.....	35,429.48
Sundries.....	3,532.65
Cash.....	47,793.39
Total.....	\$2,221,625.08

Changes during the year were a reduction of \$53.93 in stock and \$1,000 in bonds, and an increase of \$18,527.01 in cost of property.

Train mileage for the year was as follows:

	1880-81.	1879-80.	Inc. or Dec.	P. c.
Passenger.....	147,317	145,593	I. 1,724	1.2
Freight.....	172,080	183,318	D. 11,238	13.2
Service.....	8,400	2,855	I. 5,545	194.2
Total.....	327,797	331,766	D. 3,969	1.2

The large decrease in freight mileage was due to the loss of fruit traffic, which usually requires a considerable train mileage for its movement.

The earnings for the year were as follows:

	1880-81.	1879-80.	Inc. or Dec.	P. c.
Passengers.....	\$157,590.02	\$146,358.77	I. \$11,231.25	7.7
Freight.....	260,588.79	269,647.98	D. 9,059.19	3.3
Mail, etc.....	10,597.83	10,258.28	I. 339.55	3.3
Total.....	\$428,777.24	\$426,265.03	I. \$2,512.21	0.6

Paid lessee 70 per cent. for operating..... 300,123.07 298,385.52 I. 1,737.55 0.6

Net earn..... \$128,654.17 \$127,879.51 I. \$774.66 0.6

Interest and dividends..... 120,480.06 120,773.74 D. 293.68 0.2

Loss to lessees..... \$855.89 \$1,894.23 D. \$1,038.34 54.6

Gross earn per mile..... 5,014.59 4,985.56 I. 29.03 0.6

The deficit is charged to the company to be repaid to the lessee out of future surplus earnings. For two years there has been a loss, but in 1879 there was a small gain on the lease.

The report says: "These results should be satisfactory, when you recall the fact that the peach crop was a total failure in all parts of the state of Delaware. Your property has been kept in excellent condition by the lessee. In accomplishing this, 809 tons of steel rails (making 8.6 miles of track), 243 tons of mended iron rails and 34,448 cross ties, 10 Wharton safety switches, 9 steel rail frogs, with a due proportion of other materials, have been used.

"The accumulations of the sinking fund for the year have been sufficient to pay the second note for \$7,000 (of the original issue of Jan. 10, 1880, for \$42,000), and after paying the current expenses of the fund, including interest on the outstanding notes, leave a surplus of \$425.50.

"The construction account has been increased during the year by the consent of the lessor and lessee to the amount of \$18,522.01, upon which the lessee is to pay 6 per cent. per annum. The chief items of this amount consist of the difference in the cost of steel over iron rails, the additional weight of new rails above the old iron rails taken up, the substitution of iron fish joints in place of wooden ones, the Dover & Milford survey, and the new freight station at Harrington."

Louisville, Cincinnati & Lexington.

This company owns lines from Louisville, Ky., to Newport, 109 miles, and from junction to Lexington, 65.90 miles, 174.90 miles in all. It worked last year under lease the Newport & Cincinnati Bridge, 0.95 mile; the Louisville Transfer, 4.13 miles; the Lexington & Big Sandy, 33.70 miles, and the Shelby road, 18.60 miles, making 57.39 miles leased and 232.29 worked. The following statements from the report of General Superintendent Wm. Mahl for the year ending June 30 are for the 174.90 miles owned only.

Since the close of the year the road has passed into the possession of the Louisville & Nashville, and is now worked by that company.

The traffic for the year was as follows:

	1880-81.	1879-80.	Inc. or Dec.	P. c.
Train miles.....	1880.81	1879.80	I. 1.02	0.05
Passenger.....	408,371	383,114	I. 25,257	6.6
Freight.....	335,913	279,344	I. 56,569	20.3
Total revenue miles.....	744,284	662,458	I. 81,826	12.0
Pass. car miles.....	2,174,325	1,904,388	I. 269,937	14.2
Freight car miles.....	5,954,665	4,993,363	I. 961,302	19.2
Passengers carried.....	436,712	395,673	I. 41,039	10.4
Passenger miles.....	16,180,350	15,484,590	I. 695,760	4.5
Tons freight carried.....	408,679	403,833	I. 4,846	1.1
Ton miles.....	40,521,056	34,222,143	I. 6,298,913	18.4
Av. train load:				
Passengers, No.....	39.62	40.21	D. 0.59	1.5
Freight, tons.....	120.63	122.51	D. 1.88	1.5
Av. receipt:				
Per pass. per mile.....	2.537 cts.	2.803 cts.	D. 0.266 ct.	9.5
Per ton, per mile.....	1.724 "	1.807 "	D. 0.083 "	4.6

The increase in both passenger and freight traffic was considerable, freight especially showing a heavy gain. Compared with the year before (1878-79), the year 1880-81 showed a still heavier increase, 24.6 per cent. in passenger miles and 43.0 per cent. in ton miles.

Earnings and expenses per train-mile for three years were, in cents:

	1880-81.	1879-80.	1878-79.
Earnings per passenger train-mile.....	118.65	131.32	117.89
Earnings per freight train-mile.....	210.12	221.42	198.80
Earnings per mile, all trains.....	160.70	170.08	151.52
Expenses.....	103.50	106.70	100.14
Net.....	57.11	63.38	51.38

Some statistics of traffic given in the tables for last year are as follows:

	Passenger.	Freight.
Av. No. of trains daily.....	14.73	11.62
Av. No. of loaded cars per train.....	5.33	3.69
Av. train, total cars.....	5.33	17.70
Av. No. pass. or tons freight per car.....	30.95	9.16
Av. weight of load in each train.....	94.70	128.34
Av. weight of cars and engine.....	11.94	128.34
Av. weight of train and load.....	165.86	224.64
Per cent. of paying to dead weight.....	177.80	352.64
	6.71	36.38

The proportion of empty freight cars hauled was 20.81 per cent., against 19.43 per cent. the previous year. The weight of trains and load given is in tons; the passenger train load includes weight of baggage and express as well as of passengers.

The gross tonnage, including total weight of all trains and loads, moved one mile over the road was as follows:

	1880-81.	1879-80.
Passenger trains.....	70,319,845	62,844,133
Freight trains.....	115,947,356	97,319,770
Total revenue trains.....	186,267,201	160,163,903
Switching and work trains.....	28,380,252	22,071,210
Total tons one mile, all trains.....	214,647,453	182,235,113
Number of gross tons hauled over road.....	2,135,535	1,739,949

Of the gross ton miles last year, 86.7 per cent. were of revenue trains, and 13.3 per cent. service and switching. An analysis of the expenses per unit of traffic for last year is as follows:

	Per pass. mile, cts.	Passenger. Cents.
Fixed expenses:		
Administration.....	0.1132	per pass. 4.194
Maintenance of road and buildings.....	0.3033	" 11.239
Terminal:		
Ordinary.....	0.2288	" 8.475
Special (advertising, etc.).....	0.1171	" 4.239

Train-mile expenses:

	Per train mile	Cents.
Train service.....	0.1698	6.726
Locomotive service.....	0.3000	" 11.886
Special (damages).....	0.0078	" 2.684

Car-mile expenses:

	Per car mile	Cents.
Car service and supplies.....	0.0308	0.2295
Maintenance of cars.....	0.1758	" 1.3082

Gross tonnage expenses:

	Per gross ton mile	Cents.
Fuel for locomotives.....	0.1774	0.0408
Maintenance of track.....	0.2541	" 0.0585

Total..... 1.9381

Total previous year..... 1.9600

Decrease..... 0.0219

Freight.

Fixed expenses:

	Per ton mile	Cents.
Administration.....	0.0450	per ton 3.951
Maintenance of road and buildings.....	0.1240	" 10.713
Terminal:		
Ordinary.....	0.2255	" 10.469
Special (advertising, etc.).....	0.0335	" 2.868

Train-mile expenses:

	Per train mile	Cents.
Train service.....	0.0888	10.701
Locomotive service.....	0.1661	" 20.111
Special (damages).....	0.0321	" 3.868

Car-mile expenses:

	Per car-mile	Cents.
Car service and supplies.....	0.0310	0.2108
Maintenance of cars.....	0.0897	" 0.6104

Gross tonnage expenses:

	Per gross ton mile	Cents.
Fuel for locomotives.....	0.1245	0.0435
Maintenance of track.....	0.1677	" 0.0586

Total..... 1.1287

Total, previous year..... 1.1714

Decrease..... 0.0427

The heaviest item in the cost per passenger per mile was maintenance of road; per ton per mile the terminal expense was the largest single item.

The earnings and expenses were as follows:

	1880-81.	1879-80.	Inc. or Dec.	P. c.
Passengers.....	\$410,482.27	\$423,980.45	D. \$13,498.18	5.4
Freight.....	705,819.86	618,527.89	I. 87,291.97	14.1
Mails, etc.....	79,810.58	77,124.02	I. 2,686.56	3.5
Total.....	\$1,196,112.71	\$1,129,632.36	I. \$66,480.35	5.8
Expenses:				
Fixed.....	138,110.78	118,701.15	I. 17,418.63	14.6
Terminal.....	180,878.00	148,063.11	I. 12,814.89	8.7
Cont. upon train mile.....	203,406.32	173,066.35	I. 30,339.97	17.5
Cont. upon car mile.....	82,336.79	73,827.59	I. 8,509.20	6.5
Cont. upon gross tonnage.....	188,183.45	190,703.29	D. 2,519.84	1.3
Total exps.....	\$770,984.34	\$704,361.49	I. \$66,622.85	9.4
Net earn.....	\$425,128.37	\$425,270.87	D. \$142.50	...
Gross earn.....	6,838.84	6,453.01	I. 385.83	5.8
Net earn, per mile.....	2,430.69	2,431.02	D. 0.33	...
Per cent. of expenses.....	64.54	62.35	I. 2.19	...

In the above division of expenses fixed expenses include

administration and the maintenance of roadway and buildings. Terminal expenses include ordinary terminal expenses and special, that is, advertising and soliciting traffic, foreign offices, etc. Train-mile expenses include train service, locomotive service and damage to stock, property and persons. Car-mile expenses include car service and supplies and maintenance of cars. Expenses contingent upon gross tonnage include fuel for locomotives and the cost of maintaining track.

Track maintenance included the labor of laying 7,139 tons steel rails, respacing ties and raising track.

Transportation of company's material is not included in the tonnage stated above.

The expenses of administration include the operation of the entire 232.29 miles; the leased properties were charged only with such expenditures as accrued directly from their operation.

Worcester & Nashua.

This company owns a line from Worcester, Mass., to Nashua, N. H., 46.09 miles, and leases the Nashua & Rochester road, from Nashua to Rochester, 48.39 miles, making 94.48 miles worked. There are on the line owned 16.83 miles of second track and 15.15 miles of sidings. The report is for the year ending Sept. 30.

The equipment consists of 20 locomotives; 19 passenger, 3 parlor and 7 mail and baggage cars; 263 box, 110 flat and 100 coal and gravel cars, and 3 snow-plows.

The general account is as follows:

Stock	\$1,789,800.00
Bonds	962,000.00
Unpaid interest and dividends	8,462.00
Profit and loss	167,831.87
Total	\$2,928,093.87
Road and equipment	\$2,537,894.74
Nashua & Rochester stock	285,180.00
Accounts and balances	30,888.42
Materials	42,027.87
Cash	32,302.84
	2,928,093.87

The bonds decreased \$38,000 during the year. Cost of road and equipment was increased by \$25,627. There was a decrease of \$11,232.01 in materials on hand.

The traffic for the year was as follows:

	1880-81.	1879-80.	Inc. or Dec.	P. c.
Passenger miles	188,055	196,464	D.	8.49
Freight	250,885	220,591	I.	30.24
Service and switching	57,226	46,607	I.	11.619
Total	496,166	463,662	I.	7.2
Passengers carried	402,239	371,019	I.	8.4
Passenger miles	7,222,990	6,784,960	I.	438.039
Tons freight carried	514,226	467,479	I.	46.747
Ton miles	10,153,062	14,905,020	I.	1,158,042
Av. train load:				
Passengers, No.	38.40	34.53	I.	3.87
Freight, tons	64.38	67.97	D.	3.59

There was a considerable increase in traffic, which required an increased train mileage for freight, while the passenger service was reduced.

The earnings for the year were as follows:

	1880-81.	1879-80.	Inc. or Dec.	P. c.
Passenger Dep't.	\$220,053.72	\$214,386.31	I.	\$5,667.41
Freight Dep't.	\$368,717.23	\$359,206.31	I.	\$9,510.92
Rents, etc.	\$22,169.40	\$22,297.85	D.	\$104.36
Total	\$610,930.35	\$595,890.47	I.	\$15,039.88
Expenses	\$433,574.54	\$386,559.22	I.	\$47,015.32
Net earnings	\$177,355.81	\$209,331.25	D.	\$31,975.44
Gross earn. per mile	6,465.65	6,095.05	I.	370.60
Net earn. per mile	1,876.59	2,003.61	D.	127.02
Per cent. of exps.	70.97	67.13	I.	3.84

The gross earnings show a considerable gain, but the expenses were increased by heavy renewals of road and repairs of equipment, and also by the general increase in cost of labor and supplies, so that the net earnings decreased.

The income account for the year was as follows:

Net earnings, as above	\$177,355.81
Interest paid	\$49,186.30
Rent of Nashua & Rochester	74,274.00
Dividends, 3 per cent.	53,694.00
Surplus for the year	\$145.00

A new engine and cars bought were charged to equipment account. The dividends on the Nashua & Rochester stock owned, amounting to \$14,259, are included in earnings under the head of rents, etc. They reduce the rental actually paid to \$60,015.

During the year 800 tons of steel rails and 35,000 ties were used in renewals; there are now 23½ miles of track laid with steel. The road-bed has been much improved, and the fencing completed. The stations are all in good order, except one or two of the smaller ones. One freight engine and 25 box cars were added to the equipment.

The gross earnings of the leased Nashua & Rochester road were \$114,855.88; working expenses, \$69,272.31; net earnings, \$45,583.57. The interest on the stock and bonds under the lease was \$74,274, showing a deficit of \$28,690.43 for the year. The earnings were larger than those of any previous year, and are improving.

The road has been operated with regularity and with general freedom from accidents.

Norfolk & Western.

This company owns a line from Norfolk, Va., to Bristol, 408 miles, with branches to City Point, 10 miles, and to Salt Works, 10 miles, making 408 miles in all.

The present company succeeds the Atlantic, Mississippi & Ohio, having acquired the road at foreclosure sale Feb. 10, 1881. From Feb. 10 to April 30 the road was worked by the Receivers for account of the purchasers; on May 1 the present company took possession. The report is from the organization of the company to Sept. 30.

The equipment consists of 81 locomotives; 24 passenger, 2 sleeping, 4 postal and 12 baggage, mail and express cars; 556 box, 199 stock, 315 platform and gondola and 42 caboose cars; 1 pay-car and 65 ditching cars.

The general balance sheet on Sept. 30 is as follows:

Preferred stock	\$15,000,000.00
Common	3,000,000.00
Total stock	\$18,000,000.00
Bonds	10,778,600.00
Current accounts, accrued interest, etc.	461,276.73
Income account, balance	332,472.11
Total	\$29,572,348.84
Road, etc.	\$28,236,465.79
Reorganization payments, balance	180,038.25
General mortgage bonds in treasury	500,000.00
Real estate	56,863.00
Advances to New River Co.	51,622.98
Current accounts and balances	278,274.56
Materials	94,065.14
Cash	175,018.82
	29,572,348.84

Of the bonds \$8,500,000 are general mortgage bonds and

\$4,278,600 are underlying divisional bonds, which are to be replaced by general mortgage bonds. Total authorized issues are \$11,000,000 bonds and \$25,000,000 stock.

The traffic for the period from Feb. 10 to Sept. 30 was as follows:

Passenger train miles	237,880
Freight	670,395
Service and switching miles	128,196
Total	1,036,471
Passengers carried	136,239
Passenger miles	8,340,553
Tons freight carried	319,937
Ton miles	68,274,182
Av. train load, passengers	35.06
tons	101.84
Av. receipt per passenger per mile	3.05 cts.
ton per mile	1.52

The average receipt per mile was 3.18 cents for local and 2.54 cents for through travel; 1.95 cents a ton for local and 1.17 cents a ton for through freight. Compared with the previous year the passenger business shows an increase of 34,867 passengers, equal to 25.6 per cent.; of 180,971 passenger miles, equal to 21.1 per cent. The freight business has increased as follows: 41,835 tons, equal to 13 per cent.; 6,800,614 mile-tons, equal to 10 per cent. About 97 per cent. of the net increase in the revenue was from local traffic. The revenue from the through freight traffic shows a decrease, owing to the war of rates between the trunk lines.

The earnings from Feb. 10 to Sept. 30 were as follows:

Passengers	\$254,800.48
Freight	1,040,171.65
Mail, etc.	80,777.97
Total (\$3,213.90 per mile)	\$1,375,750.10
Expenses (46.74 per cent.)	642,869.83
Net earnings (\$1,711.87 per mile)	\$732,880.27

The gross earnings show an increase over the corresponding period in 1880 of \$140,526.52, or 10.9 per cent.

The expenses include all ordinary renewals of road and equipment, but not betterments and additions to property, which were charged to the improvement fund.

The income account was as follows:

Received from Receivers, net earnings, Feb. 10 to April 30	\$284,100.53
Gross earnings, May 1 to Sept. 30	897,427.18
Interest and discount, balance	3,854.32
Total	\$1,185,482.03
Expenses, May 1 to Sept. 30	\$448,956.44
Interest on bonds, May 1 to Sept. 30	366,062.48
Unpaid taxes	38,000.00
	853,018.92
Surplus, Sept. 30, 1881	\$332,472.11

Expenditures for improvements and additions to property were \$582,938.73, the chief item being for 70.4 miles of steel rails, making 301.3 miles of track now of steel. These expenditures were met from an improvement fund of \$1,000,000, set aside when the company was organized.

Advances amounting to \$204,865.79 have been made to the New River road, to be repaid in its securities.

To preserve the continuity of reports and comparisons, the following statement is given for the full year ending Sept. 30:

	1880-81.	1879-80.	Increase.	P. c.
Earnings	\$2,211,713.96	\$2,021,088.48	\$190,625.48	9.4
Expenses	1,133,385.50	1,064,900.20	68,485.30	3.5
Net earnings	\$1,078,328.46	\$956,188.28	\$122,140.18	12.6
Gross earn. per mile	5,167.56	4,722.19	445.37	9.4
Net earn. per mile	2,519.46	2,164.01	355.45	16.4
Per cent. of exps.	51.24	54.17		

The net earnings last year were the largest the road has ever made. The condensed income account, carried up to Dec. 31, is as follows:

Net earnings, Feb. 10 to April 30	\$284,200.53
Gross earnings, May 1 to Dec. 31	1,569,741.39
Interest and discount, balance	4,327.94
Total	\$1,858,278.86
Working expenses, May 1 to Dec. 31	\$815,754.06
Interest on bonds	531,236.48
Surplus to reserve fund	\$1,346,900.54
	\$511,288.32

In this statement the December expenses are partly estimated.

The report of Second Vice-President and General Manager Henry Pink states that \$582,938.73 has been spent on improvement and construction. The work done includes graduation, masonry, bridge structure, new steel rails, ballast and ties for tracks, improvements in stations and important additions to terminal facilities at Norfolk, where the company bought and destroyed a toll-bridge which obstructed the approach to their deep-water front. In conclusion Mr. Pink says: "During the year ending Sept. 30, 1881, there were passed over the road to Norfolk 325,862 bales of cotton, an increase of 40,305 bales as compared with the movement of cotton during the previous year. But for the want of adequate shipping facilities from Norfolk the increase would have been much greater. A regular line of steamships between Norfolk and Liverpool has become a necessity, and efforts are being made to establish such a line in time for next cotton season."

The report of President George F. Tyler says: "It has been gratifying to notice a continual increase in the earnings and a marked improvement in the condition of the property, in spite of the prolonged drought during the past season, which so seriously impaired receipts from all agricultural products. As compared with previous years the prospects for a large increase of business in the future are encouraging. The tripartite contract for joint traffic management made between the Norfolk & Western Railroad Company, the East Tennessee, Virginia & Georgia Railroad Company and the Shenandoah Valley Railroad Company, which took effect Oct. 1 last, promises to be of great advantage to these united systems of roads, thus brought under one control. By the very satisfactory relations established under a contract running 25 years, you are made secure in the enjoyment, for a long period of years, of the benefits which will result from the maintenance of such business connections. Under this contract the line of the Norfolk & Western is practically extended, and direct connection secured with Chattanooga, Memphis, Savannah, Montgomery, Mobile, New Orleans, Harrisburg, Philadelphia, Baltimore and New York.

"The East Tennessee, Virginia & Georgia Railroad properties also manifest encouraging indications of growth, and are being rapidly placed in the most satisfactory physical condition. This system, like your own, is laying upon its lines large amounts of steel rails, and adding to its equipment."

"The relations of the Norfolk & Western Railroad Company with the Shenandoah Valley Railroad Company are of the most friendly nature, and both companies are parties to the contract heretofore referred to, establishing the Virginia,

Tennessee & Georgia Air Line. The gap between Waynesboro and Roanoke, a distance of 95 miles, connecting the two roads, is being rapidly constructed in the most permanent and substantial manner with steel rails, stone ballast and iron bridges. It is expected that the through line will be open for business early in the coming spring. The relations between the Norfolk & Western Railroad Company and the Shenandoah Valley Railroad Company, contemplated at the time your road was purchased and reorganized, are still kept in view, and negotiations are in progress looking to the consolidation and merger of the two corporations, so soon as proper legislation can be had. Very favorable results are anticipated from the completion of the connection of the two roads at Roanoke Junction. An examination of the map accompanying this report will show that the Shenandoah Valley at its northern terminus (Hagerstown), connects with the Pennsylvania Railroad system for points East and North, and also at the same point with the Western Maryland and Baltimore & Ohio roads for business to Baltimore and Washington. The very friendly relations existing between these roads will enable your company, upon the completion of the Shenandoah Valley Railroad, to operate on all business to points reached by the Shenandoah Valley Railroad and the connections referred to. This will open up an all-rail business in connection with the Virginia, Tennessee & Georgia Air Line that has been heretofore impracticable, and the connection will undoubtedly stimulate manufacturing and mining industries to a very great extent on the entire line."

"The Norfolk & Western Railroad Company has acquired the control of the various roads in the states of Virginia and West Virginia, which aggregated constitute what is known as the New River Railroad Company. This line commences at the junction with the Norfolk & Western Railroad, at New River Bridge, and running down the New River and its tributaries, as at present projected, will be about 70 miles in length, with authority under its charters to extend up the New River to the North Carolina border, and in various directions upon tributaries to the river. At its proposed terminus it strikes a superb body of Kanawha coal, in what is known as the Flat-Top Region. The surveys were completed and work commenced Aug. 3.

"Work is now progressing rapidly, and it is anticipated that the shipment of coal and coke will commence during the coming summer."

"In respect to dividends, the policy of the management has been conservative. It has been felt that it would be unwise to commence the declaration of dividends until their regular payment thereafter could be assured. To this end the net earnings of the company, from Feb. 10 until Dec. 1, have been allowed to accumulate, and they now constitute a reserve fund, which, with the future earnings of the road, it is believed are an ample guarantee that such dividends as the board of directors may determine to declare hereafter can be regularly paid."

Northeastern (South Carolina).

This company owns a line from Charleston, S. C., northward to Florence, 102 miles. It forms a section of the Coast Line from Richmond to Savannah. Its report is for the year ending Sept. 30.

The equipment consists of 14 engines; 11 passenger, 2 postal and 5 baggage cars; 98 box and 82 platform cars; 10 gravel cars. More cars are much needed.

The general account is as follows:

Stock	\$890,350.00
Preferred stock	86,000.00
Bonds	1,058,000.00
Certificates of indebtedness	25,811.74
Interest and accounts	42,990.64
Profit and loss	118,100.02
Total	\$2,230,252.40
Road and equipment	\$2,148,130.65
Stocks owned	17,901.40
Real estate	24,348.41
Other assets	12,025.88
Cash	27,848.00
	2,230,252.40

The bonded debt consists of \$820,000 first-mortgage 8 per cent. bonds, \$236,000 second-mortgage 8 per cent. bonds and \$2,000 old bonds never presented for redemption. There are also \$58,000 second-mortgage bonds held in trust as security for the preferred stock, and not included in the accounts, as they are not a distinct liability.

The chief items of freight were as follows:

	1880-81.	1879-80.	Inc. or Dec.	P. c.
Bales cotton	126,592	91,436	I.	35.156
Barrels naval stores	85,001	89,279	D.	4.278

The increase was chiefly in through cotton from connecting roads. The production of naval stores on the line is gradually decreasing, from natural causes.

The earnings for the year were as follows:

	1880-81.	1879-80.	Inc. or Dec.	P. c.
Freight	\$333,085.77	\$244,745.82	I.	\$88,339.95
Passage	128,883.21	100,309.29	I.	28,573.92
Mails	22,190.73	19,838.94	I.	2,351.79
Total	\$484,159.71	\$404,894.05	I.	\$79,265.66
Expenses	330,956.28	210,234.40	I.	111,721.88
Net earnings	\$153,203.43	\$194,659.65	D.	\$41,456.22
Gross earn. per mile	4,752.55	3,969.55	I.	783.00
Net earn. per mile	1,507.88	1,829.19	D.	321.31
P. c. of exps.	68.27	54.15	I.	14.12

The large increase in earnings was from increased business. The increase in expenses was due chiefly to extensive renewals and to improvements of the road-bed, trestles and bridges. During the year 1,601 tons steel rails and a large number of new ties were laid.

The income account was as follows:

Net earnings as above	\$153,203.43
Interest and taxes	109,531.24
Surplus for the year	\$44,272.19
Credit from interest	900.76
Balance, Sept. 30, 1880	100,377.16
Total	\$214,510.11
New equipment, etc.	\$30,522.65
Terminal improvements at Charleston	65,857.44
	96,410.09
Balance, Sept. 30, 1881	\$118,100.02

The extraordinary expenses included one new engine and 40 freight cars, two new stations built and a loss of cotton by fire. The Charleston improvements include enlargement of the yard, new passenger and freight stations and extension of the wharves. Plans have been completed for a complete rearrangement of the yard.

The connections of the road are improving in condition and their business is generally increasing. The new Central Railroad, of South Carolina, is expected to bring this road a considerable traffic in lumber and naval stores, besides affording a better connection with Columbia and the up-country. The building of one or two other branches is expected.



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EDITORIAL ANNOUNCEMENTS.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Addresses.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

END OF THE RAILROAD WAR.

At last, after more than six months of the fiercest competition for all kinds of through traffic, the trunk lines have agreed to end their contest, and they are now busily engaged in trying to save themselves from the effects of what for so long they have been zealously doing.

The agreement which the roads have made has been called a truce and not a peace, and to a certain extent this is true. But it is still a cessation of conflict, and an immediate beginning of co-operation more complete than ever before, and the single question left unsettled is so left that it is not at all likely to occasion trouble when the other features of the agreement have been carried out.

The question of the differences of rates to and from the different seaboard ports is not settled, but is left to be adjudicated by an advisory commission, which is to be employed for this special work, receive testimony and hear arguments from all parties concerned, including the merchants and commercial exchanges of the several cities as well as the railroad companies, and in the light of the evidence offered advise the rates, different or uniform, that to them may seem just. The purpose is to secure for this commission men wholly disinterested and unprejudiced, and of judicial habits. At a meeting last Tuesday it was agreed to invite certain persons to take places on this commission; but their names will not be made known until they have accepted. It is probable, however, that well-known judges will be selected rather than merchants or railroad men, and from the interior rather than the East.

The railroads do not, and after what some of them have done they could not, agree in advance to accept the advice of this commission. They probably will do so, however. The commission is not likely to advise anything that will revolutionize the course of traffic, and the railroads are now anxious for peace.

This is almost the least important part of the agreement, however. What gives most confidence that there will be peace hereafter is the agreement to divide all through traffic over the trunk lines, live stock and passenger as well as freight, in both directions, to do it immediately (without waiting for the report of the advisory commission), and to provide means for effecting the divisions agreed upon by a fund from which money payments will be made for any excess of traffic carried by a road over its allotted share. This is the heart of the agreement, and it is this that promises to secure peace. Once divide the east-bound traffic and we do not believe that any company will break the agreement because the differences in rates are not made to suit it. All the trouble last year which resulted in the breaking-out of the war was due to the failure to divide the east-bound freight. If

that had been done—actually done—the New York Central would have had no cause for complaint.

When we say that the traffic is to be divided immediately, we mean, of course, as soon as possible. It will take some time at best, and in many cases doubtless questions will have to be left to arbitration, which will cause further delay. But the companies, with something like eagerness, have determined that the apportionments shall be made, and that where they cannot agree arbitrators shall decide.

The division of the passenger business will be altogether a new work (for these roads). We do not know that it has been done anywhere in this country, except by the Chicago-Council Bluffs roads, which have managed the matter very simply and effectively for many years, going so far as to have what we may call one "joint train," on Sundays only one train running, and the tickets by all the lines being good on it, which goes one Sunday by one line and the next Sunday by another. Some two years ago some meetings were held to consider a division of the passenger traffic of the trunk lines; but nothing was effected, and it will probably take more time to arrange for it than for the freight traffic.

The effect of the agreement so far is a restoration of west-bound rates to the tariff of June 15, 20 cents per 100 lbs. from Chicago to New York for grain, and 25 cents for provisions; and a restoration of west-bound rates to the tariff of Aug. 6, 45 cents per 100 lbs. for first-class freight, and so down. Both these tariffs are substantially war rates, and both were made because there had been much cutting of rates, and they were intended to meet the cuts. But the east-bound rates are nearly twice as great as those that had been accepted for some time, and the west-bound one half higher. They are not such rates as anyone would think of making at this season if he could help himself; but business has been so thoroughly demoralized by the long war that probably it is the best that can be done at present. Indeed, practically it is better than can be done at present. Contracts have been made for a very large part of the west-bound freight—probably nearly all that going to the principal Western cities—at 30 cents per 100 lbs. for first-class, and these contracts do not expire until July. These contracts will have to be carried out directly or indirectly; and we presume it safe to say that by far the larger part of the west-bound freight traffic is pretty thoroughly spoiled for the next five months, and that it will yield three or four millions less than last year. In the other direction we believe there are no time contracts, but some contracts for quantities which will soon be filled. But the markets are in a very peculiar condition, and it is not believed that much grain would move at much higher rates. But if the 35-cent rate of last winter cannot be had, something better than 20 cents ought to be possible; and if flour and grain must be carried without profit, it certainly is not necessary to adhere to a 25-cent rate on provisions. There is no sense in an arbitrary difference of five cents per 100 lbs. between grain and provisions; it was enough when the grain rate was 40 cents; but none of the causes which keep grain down to 20 cents apply to provisions.

It will be seen, therefore, that while we have good prospect of prolonged peace, the through business is still and probably will long remain much less profitable than a year ago. This, however, does not lessen the importance of the settlement. A delay in it would have still further postponed the restoration of really profitable rates; and if the roads are making next to nothing from their through traffic now, they are no longer losing largely, as they had been doing, and that is a great improvement.

There has been no change in passenger rates so far. We do not know that there is any obstacle to the immediate restoration of these.

PREVENTION OF RAILROAD ACCIDENTS.

After each serious railroad accident the daily newspapers are filled with suggestions of means which should be adopted to prevent similar calamities in future. Those persons who have noticed the consequences which have followed such accidents must have observed that the remedial measures proposed in this way are seldom adopted, and that it is futile to expect that the newspapers can effect any very radical improvement in railroad management. Of course a great many plans are proposed at such times which are very absurd, but even the most efficacious methods of securing safety, if proposed in this way, receive very little attention after public excitement has passed away.

There are several reasons for this, most of which will be apparent to any one who has ever undertaken to bring about a reform in anything pertaining to public affairs.

In the first place, the measures proposed for pre-

venting accidents have no authority to support them, so that it is impossible for the public and for some railroad officers to distinguish the wise suggestions from the foolish ones.

Secondly, experience indicates that the human race, with rare exceptions, absorbs new ideas with very great slowness, and that there is little unanimity in the process. The latter adds very much to the difficulty of effecting a reform, where, as in the case of a railroad organization, the co-operation of a number of persons is required. It has been said that the difficulty of convincing a number of people of the wisdom of any new measure increases as the square of their number. That is, it is four times as hard to convince two persons as one, and nine times if there are three. Now it so happens that to introduce any improved method of construction or operation on a railroad it is generally necessary to satisfy not less than three of its officers. It is often very difficult to do this, unless there is a great deal of convergent and cumulative testimony, facts, circumstances and causes to indicate that the proposed measure is a necessary and wise one. Even when the lessons of experience are emphasized by the sacrifice of many lives, its teaching is apt to be soon forgotten, and, although it is reiterated over and over again in the same way, and with all the accessories of death in its most horrible forms and with pain and agony which are indescribable, the causes which have produced such results are soon lost sight of, and the ghastly instruction must be repeated again in some new way before it can secure the attention which its importance deserves.

After an accident has occurred it often happens, too, that only the most searching investigation will reveal the cause of it. At the present time it is still uncertain whether the train which was wrecked at Spuyten Duyvil was delayed by a defect of the Westinghouse brake, or whether some one on the train pulled the cord which is provided so that, in case of accident, any one in the cars can apply the brakes; that is, whether the misuse of this safety appliance produced the accident, or whether some part of the brake apparatus was out of order. After nearly all accidents there is a dispute over the causes which produced them, and unless the causes are ascertained without doubt and are established by some competent authority, the accidents will fail to serve the only useful end which they seem to have, which is, to indicate how other similar calamities may be prevented in future.

It is obvious, too, that railroad companies and their officers often have a direct interest in hiding the true causes of accidents, and that unless there is some competent authority delegated with the duty of finding these out and making full and clear reports on them, the public is not at all certain of learning how or why they occurred, nor is the responsibility sure to be fixed where it belongs. Such reports, too, to have much value, must be made by experts. At present usually the only investigations made in such cases are by coroner's inquests. Of the average intelligence of these officers perhaps it is not necessary to speak now, but even if they were all men of a high order of ability they would not be competent to make an investigation of a matter requiring a great deal of special knowledge. It would be absurd to appoint a man to preside over a court who knew no law, and both ante and post-mortem examinations to find what is or was wrong with the physical mechanism of any one are, and must be, intrusted to special medical experts.

When a building falls down and kills few or many of its occupants the public see at once that the owner of it is not a proper person to investigate the causes and fix the responsibility for the calamity; and yet in this country, with the exception of a few states which have delegated a very limited amount of authority to railroad commissions to examine into the causes of railroad accidents, there is no investigation in such cases worthy of the name, excepting that made by the officers of the railroads on which the accidents occur, and who may or may not be responsible for them themselves. When a railroad company kills and injures any of its passengers the public has a right, and is quite certainly ultimately to exercise the right, to demand that the causes should be investigated and the responsibility fixed where it belongs. To do this, though, in an effective way some competent authority must be appointed for the purpose.

Reference has often been made in these pages to the investigations and reports of the British Board of Trade concerning railroad accidents which occur in the United Kingdom. The precise constitution of that board it is not necessary to describe now. It will be sufficient to say that connected with it are a number

of inspectors, one of whom is delegated to make an investigation when a serious accident occurs and to make a report thereon "to the Lords of the Committee of Privy Council for Trade." These reports, as stated in their title page, are "presented to both houses of Parliament by command of Her Majesty," and are printed in the usual "blue book" form of parliamentary reports, and can be bought by any one who wants them at a trifling charge. A few extracts from the recommendations made in these reports will indicate the attitude which the Board of Trade occupies to the railroad companies:

On April 21, 1857, Captain Galton reported of an accident and the Board made the following recommendations:

"My Lords direct me to observe, that it appears from this report that the accident in question was entirely due to the employment of a defectively constructed engine upon a bad road, and that therefore serious blame is to be attributed to those in whom the management of the railway is vested."

On May 8, 1857, Col. Yolland in a report on an accident on the London & Northwestern Railway, recommended:

"That their Lordships should call the attention of the directors of the London & Northwestern Railway to the expediency of removing the distant signal worked from the level crossing to a greater distance, placing it so that it may be seen in both directions just above the bridge to which I have alluded: for if it be admitted that distant signals are absolutely necessary for the prevention of accidents at stations, it is of the utmost importance that they should be placed at such distances from the stations as will allow of a train being stopped before they are reached."

On Aug. 13, 1857, the Board in a communication to the Secretary of the Northeastern Railway Company say:

"My Lords regret to learn that the accident was mainly owing to the want of proper discipline among the servants of the company, and that the habitual disregard by the servants of a most important rule has been customary upon the line."

On Oct. 19, 1857, after referring to the dangerous condition of a platform in the Caledonian Railway, Captain Tyler said:

"Every day that it remains in its present state must bring a heavy responsibility upon the company, and that they should have allowed it to remain as it is for so long a period cannot be considered as otherwise than highly discreditable to the directors."

The reports nearly all contain recommendations of a similar character. The circumstances and the causes of the accidents are fully set forth, and then the recommendations of the inspecting officers follow. The railroad companies often make reply when they think the report is in any way unfair, and sometimes considerable correspondence is carried on in this way.

Reports on some classes of accidents repeat and reiterate certain recommendations over and over again. Last week we gave only a few of these in relation to working lines by telegraph, or by the block system. In the reports on boiler explosions the inspectors have recommended over and over again that boilers should be subjected to frequent internal inspection, and to a hydraulic test, and that butt-joints should be used for the longitudinal seams, and that the latter should be placed above the water line. Sometimes when an explosion occurred reference is made to these recommendations in previous reports, and in a few cases these are reprinted entire. In going through them, though, one is struck with the constant repetition of the same advice, which is made each time with whatever renewed impressions a disastrous accident can give it and forcible language can add. These reports have undoubtedly had a very great influence on the railroad system of Great Britain, and to them in a great measure the perfection of their signals, permanent way, etc., is no doubt due.

The influence of such reports on both the public and railroad officers is very much greater than any newspaper criticism can be, for the reasons indicated in the beginning of this article. They have first the authority which knowledge of the subject gives them, and the reserve power of the Parliament which may, if occasion requires, be exercised to enforce the recommendation of the Board.

Second. The reiteration of the lessons taught by accidents, especially when made by those who have both knowledge and authority, is more certain to convince railroad officers than any desultory recommendations made by irresponsible persons.

Third. They are almost certain to fix the responsibility where it belongs, and by bringing the subject directly to the attention of boards of directors it makes them, who have superior authority, accountable for what requires improvement or reform.

It of course would be folly not to see that there are difficulties in securing an honest administration of the authority delegated to such a board under our system of civil service, but the same difficulty exists in every department of government. Judges may be dishonest, but we don't abandon our courts for that reason.

The officers of the Health Department may be bribed, but we give them authority all the same to stop the spread of small-pox.

LIMITED TICKETS.

The general question of the relative rights of passengers and the companies under "limited tickets" has several aspects which attract attention just now, in different parts of the country. One reason of the obscurity which embarrasses the subject lies in the failure to distinguish properly between the two grounds of a company's obligations toward passengers. The courts have always held that a railroad company, in return for the franchise and right of way granted to it by the state, owes a public duty to carry all persons who offer themselves as passengers and are willing to pay lawful fare and to comply with reasonable regulations. But aside from this ground of obligation a railroad company is competent to enter into a special contract; so also is an adult, sane passenger; and when such a contract has been made it gives rise to mutual obligations which may differ from those founded on the public duty. Sometimes both grounds may concur to sustain a claim made. Sometimes only one ground exists. The distinction is well illustrated by the story of a case in Wisconsin in which a large party was formed in Madison to attend the laying of a corner-stone of a church in Watertown, on a Sunday; and they engaged the railroad company to run an excursion train for them, carrying them out in the forenoon and bringing them back at night. The company carried them to Watertown as agreed, but neglected to provide the return train, and the excursionists were left to shelter themselves as best they could throughout a cold autumn night. A suit was brought for damages, and the lawyers disagreed whether it was to be deemed founded on the public duty or the contract. The Court said that the public duty would not sustain the suit, for it does not extend to Sunday travel. This company did not hold itself out to the public as carrying passengers on that day, and a railroad is not bound to do so; there was, therefore, no breach of the simple duty of a carrier to transport all persons demanding accommodation. But there had been, in this instance, an express agreement on the part of the corporation with the excursionists that the return train should be run. This agreement (assuming there was no Sunday law of the state prohibiting it) brought the company under a special obligation for that occasion, and its failure to keep such agreement rendered it liable, so the Court held, for full compensatory damages.

It is obvious that where a passenger has paid full fare and received a ticket which by its contents, and the course of business of the company, known to him, is simply evidence of payment of fare from one point to another, his right to ride may be co-extensive with the public duty to carry all fare-paying travelers. But if, on the other hand, the company makes a special offer to transport passengers at a reduced fare, or at extra speed, or with unusual accommodations, and the passenger buys the ticket as embodying this special contract, his right to ride is subject to whatever limitations the ticket, fairly construed, prescribes. Thus the key to these questions is often found in taking notice that the limited ticket is sold as a special contract. Passengers and their attorneys are apt to overlook this very important feature.

In a somewhat remarkable Maine case the company got up an excursion and employed a band to attend and play for the entertainment of the excursionists. The compensation of the band was to be \$25 and a ticket for a lady to be invited by each member. One of the bandmen brought, instead of a lady, his brother, obtained a lady's ticket from the conductor, and gave it to the brother. According to his story the conductor authorized this, but the conductor denied having done so. When the conductor collected the tickets he refused to recognize the one held by the brother, saying that those tickets were intended only for ladies. The tickets, by the way, were mere pieces of cardboard, printed with the date and name of the place; they contained nothing in the nature of a contract or description of a trip. The brother, for refusing to pay fare, was put off the train; and a lawsuit for damages was the consequence. The decision was that the right of members of the band to carry their friends was governed by the contract, and was limited to ladies; and that the piece of cardboard was not, in law, a ticket, but only a token of the privilege of the bandmen to carry a lady.

The Baltimore & Ohio Railroad Company once issued a series of commutation tickets, at a reduced rate, of course, containing a printed stipulation that any ticket found in the hands of a person other than the purchaser would be forfeited. One purchaser did allow

his ticket to be used by some one else, and accordingly next time he presented it, the conductor confiscated it and put him off the train for refusing to pay fare. The Court pronounced this a case of contract between the company and the passenger, and said that as soon as the ticket was issued by the one and accepted by the other, the conditions and stipulations embodied in it became mutually binding, and the passenger was liable to lose his ticket if he violated the condition.

An odd case is lately reported from New York. The New York Central & Hudson River road issued reduced rate tickets which stated that the holder was to use them on or before Sept. 26, after which day the company might refuse to accept them. One holder started on his trip on the afternoon of the 26th; it was a twelve-hour trip, and when midnight came and the 27th was fairly begun, the conductor refused to recognize the ticket any longer and claimed fare—not, indeed, for the entire journey, but for so much as was taken on the 27th. The Court pronounced this lawful, saying that if in such a case it is the fault of the company that the journey cannot be completed within the time limited, the passenger has a right to be carried through free; but if it is his own fault, he may be called upon for fare.

Besides this principle of a special contract embodied in a ticket, there is another which determines some of the cases in favor of the companies. They have the right to prescribe reasonable regulations; and printing one of these on the ticket may operate as notice of the rule to the passenger, and render it obligatory upon him. This may probably be the ground of a Connecticut decision lately mentioned in the newspapers. A Mr. Shelbourne bought a ticket from New York to Boston, reading: "Only on a steamer, etc., and train connecting therewith; no stop-over allowed." He, however, left the boat at Norwich and tarried two or three days. On resuming his journey he offered his ticket, but the conductor refused it; and the Court sustained the refusal. There may, indeed, have been proof of a reduced rate of fare or other facts establishing a special contract, but we do not regard such proof as essential in this class of cases. A company has the right, even in dealing with passengers who pay full fare, and whom they carry by reason of its public duty, to prescribe reasonable regulations requiring purchase of tickets, and if the ticket notifies the holder that "no stop-over is allowed," or that it is "good for this trip and train only," or the like, there seems no good reason why he should not be bound by this, considered as a lawful regulation. In other words, a company may require a passenger to provide himself with a ticket for each particular trip he designs to make. Such, we think, is the course of recent opinion in the courts.

Perplexing questions may arise where limited tickets over two or more connected lines are sold by one company and refused by another. Such a case was lately tried in Ohio. The narrative given is that Mr. Hine purchased an inauguration excursion ticket from Toledo to Washington, to expire on March 10; receiving with the ticket a schedule showing that by leaving Washington at 9:30 p. m. of March 9 he would arrive at Toledo at 10:40 p. m. of March 10. He left Washington at the proper hour, but owing to the detention of trains between that point and Pittsburgh, did not reach the latter city to take the train for Toledo until midnight of March 12, when his ticket had expired. The conductor on the Pennsylvania Company's train rejected the ticket on the ground of limitation, and, on Mr. Hine refusing to pay fare, he with his daughter was compelled to leave the train. He then sued the company which sold him the ticket. The defense was that that company was not responsible for a delay occurring on the line of a connecting road, while the plaintiff claimed that his contract was wholly with the defendant, who stipulated for his transportation without regard to connecting roads, which were to be deemed either the agents or partners of the defendant.

The plaintiff recovered a verdict for \$500; but the question involved will probably be carried before the Supreme Court.

Alteration of these limited tickets is causing the companies some difficulty. Scalpers along the line of the Pennsylvania Railroad have been detected in ingenious devices for altering tickets which they cannot sell within the time limited, so that they shall appear good until a later date. The tickets which have been issued by the company bear the names of the twelve months; also, printed figures representing various years, 1881, 1882, 1883, etc., and all the days of a month from 1 to 31. The agent, when he sells each ticket, punches out the month, day of the month, and year, until which it is to be good. But the scalpers have contrived to imitate the punch and to extend a ticket—for example, by punching out "Dec." and deftly filling up the hole where the agent had punched

out "Nov.," thus giving the ticket another month to run. A ticket thus changed which should come to the hands of a *bona fide* purchaser for value and without notice might raise perplexing questions. Under most circumstances, however, the risk of such an alteration would fall upon whoever bought it outside the ticket-offices or authorized agencies of the company.

It may be worth adding that the invalidity of a limited ticket does not always and necessarily justify prosecuting the passenger who offers it as if he were attempting to travel without paying fare, or even putting him off the train. The circumstances should be considered. The passenger may be acting in perfect good faith, in ignorance of the facts which entitle the company to repudiate the ticket, and in the belief that it entitles him to ride. If so, a prosecution under any statute making it an offense to defraud railroad companies of fares might fail on the ground that no intent to defraud existed. To constitute the criminal offense contemplated by most such statutes the passenger must have designed to cheat the company out of the ride; now, offering a ticket which he mistakenly supposes good does not "fill this bill." Such has been the decision in one English case of the kind. And cases might occur in which a conductor would not be justified in expelling a passenger who began his journey in good faith on such a ticket, and was unprovided with any other funds.

REBATES ON EXPORTS.

The average yearly receipts of flour and grain in excess of exports at the four Eastern ports during the five years ending with 1880, and the largest and smallest amount of such excess in these years, have been, in bushels:

	Average.	Largest.	Smallest.
Boston.....	16,071,228	17,637,312	14,350,422
New York.....	40,002,005	45,034,202	34,171,047
Philadelphia.....	14,805,816	17,607,514	11,825,200
Baltimore.....	9,793,302	11,416,061	7,350,280
Total.....	80,672,411	82,583,826	77,129,768

In the "total" the "average" is the average aggregate receipts of the four ports over exports, and these were largest in 1879 and smallest in 1880, easily accounted for by the difference in stocks on hand, as several cities must have storage capacity for 30,000,000 bushels or so, which may be more or less filled, according to circumstances.

It appears from this that these four cities require over 80,000,000 bushels of grain a year for domestic consumption. In proportion to population by far the largest consumption is at Boston; but this is probably chiefly due to its supplying a larger population around it. The four large cities supplied from New York have a population of 2,000,000 and more; taking the census population at the other places for the cities only, the consumption, or city sale, is 20 bushels per inhabitant at New York, 44 at Boston, 18 at Philadelphia, and 29 at Baltimore. The sales include shipments to coastwise points, which sometimes are considerable to Southern ports, and a large part of the flour going thither probably is shipped from Boston, in vessels which bring cotton back. Washington may be largely supplied from Baltimore.

The consumption, or excess of the receipts over exports, of course includes the grain manufactured; but as flour is included, the amount ground will make no difference in the result. The other chief manufactures are beer and starch. Glucose, we believe, it is not made at any Atlantic port. The glucose manufactures elsewhere consume millions of bushels when corn is cheap.

This consumption of 80,600,000 bushels at the four cities is very much less than their exports, which were 108 millions in 1876 and 1877, 180 millions in 1878, 247 in 1879 and 238 in 1880, falling off largely in 1881. But the consumption, as we have seen, is comparatively unchanged from year to year, while the exports, of course, vary greatly with the production and foreign demand. Further, the sales for home consumption of these four cities are but a fraction of the total consumption of the Eastern states, or even of that part of the consumption supplied from the West. The states east of Ohio and north of the Potomac had an aggregate population of 16,600,000 in 1880, a comparatively small part of which is rural; and the four cities we have mentioned (including Brooklyn, Jersey City and Newark with New York) had less than 3,600,000 inhabitants. If the consumption of Philadelphia may be taken as the average, these places supply grain to 4,500,000 people; and this leaves an enormous town population in these states to be supplied from their own production and the West. Now such places as Buffalo, Rochester, Syracuse, Utica, Albany, Elmira, Trenton, Harrisburg, Scranton, Pittsburgh, Springfield, Providence, Hartford, and the scores of smaller places with a much larger aggregate population, are

large consumers of grain, and can get but a small part of their supply from the local production. Their demand is substantially a steady one, and creates what is strictly a local traffic. It seems absurd that the necessities of an export trade, the rates on which are determined by the competition of California, Russia and Australia, should be allowed to affect this local traffic. For this the highest rates that have been made of late years are positively low, and would be recognized as very low in every other country of the world. They are strictly limited by the competition of the Erie Canal, but this need never make them unprofitable. The 40-cent rate of the winter of 1879-80 amounts to but 80 cents on the average individual's yearly consumption of flour. By carrying without profit the cost to him (or to the dealer who supplies him) is reduced 40 cents; and this winter he has saved 60 cents by the roads' carrying below cost. He should not and he will not complain of a rate that yields the carrier a reasonable profit, and all the profit that, in the face of canal competition, the railroads are able to get.

There has been once or twice some talk of making a rebate on grain exports, and for a long time at Philadelphia and Baltimore such rebates were made, as they still are at Boston. There are difficulties in the way of doing this, doubtless, but the experience of these cities shows that they are not insurmountable, though at New York the matter is complicated by the large canal receipts. In almost every other country there are export rates which are lower than the regular rates, intended to meet the competition of other countries which export the same articles; and there is precisely the same reason for making the export rates lower than there is for making through rates lower in proportion than the local rates. When the railroads are able to get good rates on export grain, as in 1880, then there need be no difference; but such times are uncommon. They occur only when this country, or rather the part of this country that exports by Atlantic ports, has the only considerable supply of grain. The failure of the wheat crop in Russia and in most other European countries compelled Europe to come here for its supply in 1880; but this is a very uncommon occurrence. We cannot usually expect to send great quantities of grain to Europe unless it is carried at very low rates, and sometimes the margin over cost must be extremely small—so much so that if other traffic is carried at the same rates the railroads cannot be supported. Now there is no good reason for singling out what is commonly called "local" traffic to bear all the burden of supporting the railroads—that is, of paying the interest on their cost—in such times as these. All the other domestic consumption may be made local traffic, if the railroads co-operate. Not that they can charge any prices they please on it, but that they can usually obtain for carrying it more than it is possible to get for carrying export grain without stopping or seriously reducing the exports.

We charge, let us say, \$1.50 on an average for transportation that costs the railroad \$1, fifty cents being required for interest and dividends. But as we cannot always get \$1.50 for work that costs us a dollar on export (and much other) traffic, we charge what we can get—\$1.25, \$1.10, and will do better to take it at \$1.01 than to go without it. No fault can be found with this policy; but fault is found with the policy that reduces the rate from \$1.50 to \$1.10 not only on the export grain, varying from 3,000,000 to 7,200,000 tons in the year, but also on the 4,000,000 tons or so that is not exported but consumed chiefly in the Eastern states. Because it is not possible to make more than a trifle on the exports is a reason for getting full average prices, if possible, on the other business, including the grain consumed at Philadelphia and New York, as well as the groceries and dry goods consumed at Big Woods and Long Prairie. The only question is the possibility. We will thus make our rates as nearly uniform as the circumstances will permit, and distribute the cost of supporting the railroads over all its traffic with the nearest approach to equity.

The Reading and New York Central Coal Line.

The new line by which Reading coal shipments to the West are to be made is now announced. The Reading has now a line in operation from Philadelphia through the heart of the anthracite coal regions to Williamsport, where the Philadelphia & Erie and the Northern Central diverge. Thence a line is to be completed nearly due north to the New York Central, by using two roads now in operation for 110 miles south of Geneva, N. Y., and uniting them with Williamsburg by constructing the Jersey Shore, Pine Creek & Buffalo road.

The Jersey Shore, Pine Creek & Buffalo Company in 1873 had surveyed a line for a railroad from Williamsport, Pa., northwestward 118 miles to Port Allegheeny, and had graded

a few miles. At that time it was under the control of the Atlantic & Great Western people, and it was proposed to make through it a connection between that road and the Reading. It has been described as an unusually favorable line. But to make the connection now proposed it will be necessary to construct only 30 to 35 miles of this road, from Williamsport north to Antrim, whence the Corning, Cowanesque & Antrim and the Syracuse, Geneva & Corning make a line 110 miles nearly due north to the New York Central at Geneva. These three roads will make a line nearly parallel with and no where more than a few miles from the Northern Central. The route to Buffalo then will be:

Philadelphia to Williamsport (Reading).....	Miles. 199
Williamsport to Geneva.....	145
Geneva to Buffalo (New York Central).....	120

Total..... 464

By the Pennsylvania and the Buffalo, New York & Philadelphia the distance to Buffalo from Philadelphia is 418 miles. From Williamsport (a common point of both routes) by this latter route the distance is 230 miles, against 265 by the new route. There are no considerable shipments to Buffalo, however, from the Pennsylvania lines, its lake port being Erie, 446 miles from Philadelphia and 248 from Williamsport, and 88 miles west of Buffalo on the Lake Shore road. As probably nineteen-twentieths of the westward shipments will be coal, mostly reaching the road at Williamsport, the distance from the latter place is most important. Westward rail shipments passing Erie over the Lake Shore will have been hauled 248 miles if they came by the Philadelphia & Erie and 353 if they came by the New York Central. But the larger shipments are still by lake, and Buffalo, owing to the immense shipping arriving there with grain, is doubtless much the best port for coal, and the distance will be practically the same as if it went to Erie.

As we have said, the New York Central has for some time had a line into Philadelphia, the Philadelphia end of which was the Reading. It has not, however, received coal from the Reading in considerable quantities heretofore, we believe, and the importance of the new line doubtless is that hereafter the Reading will ship its coal to the West, and to local points on the New York Central (a very important traffic by itself) by this route, and not by the Philadelphia & Erie. Heretofore we believe the chief shipments over the New York Central have come from the Delaware, Lackawanna & Western, which next year will have a road of its own into Buffalo. The Reading will be able to supply an almost unlimited quantity of this freight, but as the haul (on shipments west) will be only 120 miles over the New York Central, the traffic appears less important to it than to the New York Central's western connections, and especially the Lake Shore.

The importance of the coal traffic to the Pennsylvania is that it enables it to fill the grain cars that would otherwise go West empty. Whether its grain goes to New York, Philadelphia or Baltimore, the returning cars pass near the coal mines, and can be loaded with but little expense or delay.

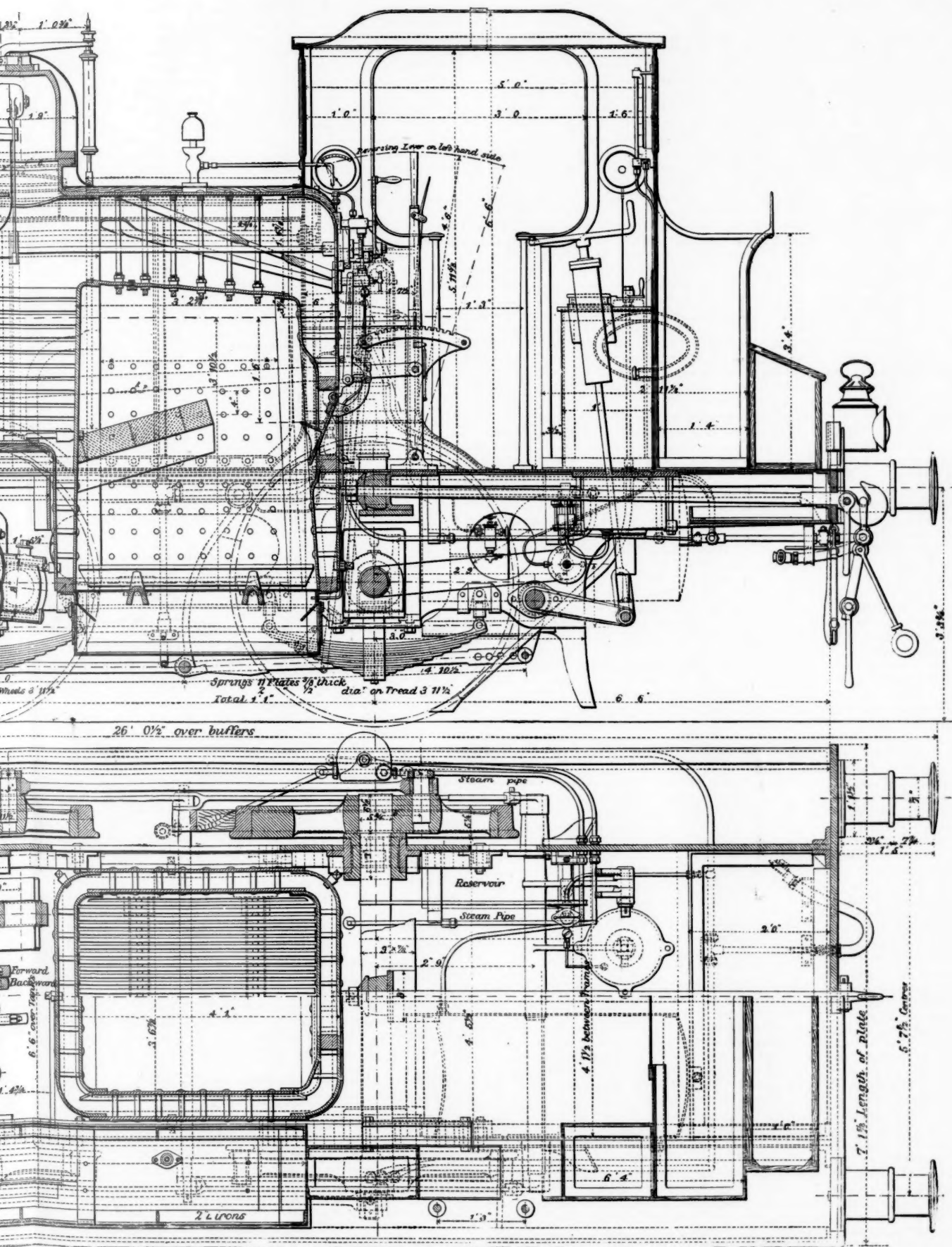
But this is not true of the New York Central. Cars returning from New York will not go within 145 miles of Williamsport even, and about 250 miles from the nearest anthracite mines. It will probably be cheaper to transfer from a dump at Lyons or Geneva than to attempt to run New York cars from the Central down to the mines. If the grain goes to Philadelphia by this route the cars, it is true, will pass directly through the mines; but, even if the New York Central were disposed to cultivate a grain export business at Philadelphia to the utmost, it certainly cannot afford to favor shipments by this route, in which it has a haul of but 120 miles, as against shipments to New York, which it carries 440 miles. The grain might be sent by the Allentown Line to New York, a distance of 495 miles from Buffalo, and yet pass the coal mines; but while this would be better for New York, it would not help the New York Central, and it would be bad for the Reading, which has but about 100 miles of this line.

The alliance is thus likely to be important chiefly as supplying the New York Central with an abundance of anthracite for consumption on its own lines and for transportation west. And as the New York Central has but a short haul on the shipments westward, any great shipments so secured are likely to be of more value to the Western Vanderbilt roads than to the New York Central.

The Growth of City Population.

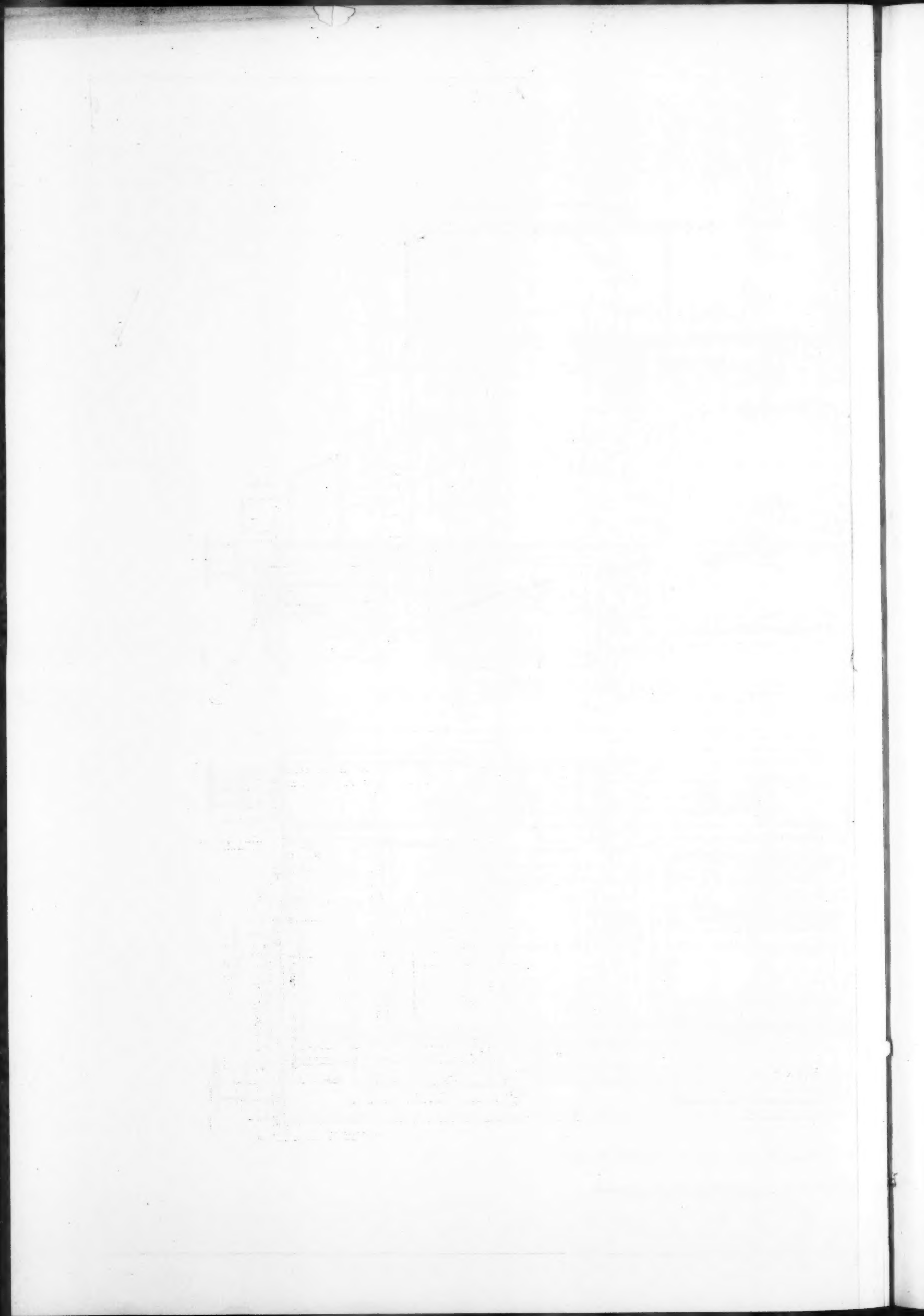
The growth of city population in this country is illustrated by the census returns of cities having more than 40,000 inhabitants. There were 45 of these in 1880, and their aggregate population then was 7,584,762 against 5,560,102 in 1870, an increase of 2,024,650, or 36.4 per cent., the average increase for the whole United States having been 30 per cent. In 1880 15 per cent. of the total population of the country was in these 45 cities; in 1870 the 31 cities with more than 40,000 inhabitants had but 13½ per cent. of the total population. But in all probability the percentage of increase has been greater in towns of less than 40,000 inhabitants than in the larger places. Gains from 3,000 to 5,000 or more, and from 5,000 to 8,000 are much more common than from 30,000 to 50,000, or from 50,000 to 80,000. Yet the growth of city population was probably less rapid in this decade than at some other times, because the prostration of business after 1873 affected town industries chiefly, and diverted people who in times of prosperity would have devoted themselves to trade or manufactures to agriculture. Now, however, the ten-

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— LONDON, BRIGHTON & SOUTH COAST RAILWAY.

intendent, and built at the Company's Works. Brighton, England.



endency is to the towns again, which afford abundance of employment at good wages, and should we have a continuance of the good times until the next census (which is not at all probable) we shall probably find a much larger proportion of the total population in the towns than there was in 1880. From 1870 to 1880 many of the largest cities did not keep up with the country at large in growth of population. The latter, as we have said, was 30 per cent., while New York's increase was 18 per cent., Philadelphia's 25.6, St. Louis' 13, Baltimore's 24.3, Cincinnati's 18, New Orleans' 13, Newark's 30 and Louisville's 23; while of cities that had more than 100,000 inhabitants in 1870, only Brooklyn, Chicago, Boston, San Francisco, Buffalo and Washington increased more than 30 per cent.

This distribution of the population between town and country is of very great importance to the carriers. Growth in rural population is almost wholly in the West, where there remains much land to be brought under cultivation. Growth in town population may be large in the East, but it is largest in those states which are comparatively new, but yet have now nearly their full complement of farming population, which is true now of Indiana, Illinois, the southern half of Wisconsin and the eastern portions of Minnesota, Iowa and Missouri. The country fills with farmers first, and then the towns grow with great rapidity for a long time after the rural population ceases to increase, as has been the case in Northern Illinois now for twenty years or more.

We give below for each of seven Eastern and nine Western states the total number of towns of 5,000 in habitants or more in 1880, and the number of such towns which had an increase of population of more than 40 per cent. from 1870 to 1880:

	In towns of 5,000 or more.	No. with in- crease more than 40 p. c.
New Hampshire.....	5	None
Massachusetts.....	40	11
Connecticut.....	15	7
Rhode Island.....	7	3
New York.....	40	4
New Jersey.....	13	7
Pennsylvania.....	32	8
Seven Eastern states.....	162	40
Ohio.....	26	15
Michigan.....	12	8
Indiana.....	12	6
Illinois.....	22	7
Wisconsin.....	10	4
Minnesota.....	5	4
Iowa.....	11	4
Missouri.....	6	3
Kansas.....	4	2
Nine Western states.....	108	53

Thus about one-fourth of the Eastern towns increased more than 40 per cent., and about one-half of the Western towns; but the only Western states with a considerable number of towns of this size are those east of the Mississippi, where of 82 towns in five states 40 increased more than 40 per cent.

In the South towns are few in number; in 12 states only 43 of more than 5,000 inhabitants. Of these 19 increased more than 40 per cent. from 1870 to 1880, including 9 out of the 11 west of the Mississippi and 10 out of the 32 east of it.

Several Southern towns decreased in population from 1870 to 1880, including Danville, Va., Columbus, Ga., Natchez, Vicksburg and Memphis. But the whole population of the South in towns of 5,000 inhabitants is very small—about 1,200,000 in 1880, or less than 8 per cent. of the population of those states. In Connecticut (which has no large cities) 47 per cent. of the population was in such towns, and even in comparatively new Ohio those towns held 24½ per cent. of the population.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Chicago & Eastern Illinois.—A branch is completed from Wellington, Ill., to Cissna, 13 miles.

Denver, Utah & Pacific.—Completed from Denver, Col. to the Mitchell coal mines, 33 miles. Gauge, 3 ft.

Northern Pacific.—The *Pend d'Oreille Division* is extended eastward to Pend d'Oreille, Wash. Ter., 1½ miles.

Toledo, Cincinnati & St. Louis.—Extended from Veedersburg, Ind., southwest to Ridge Farm, Ill., 22 miles. Gauge, 3 ft.

This is a total of 59½ miles laid in 1881, bringing up the total so far reported for that year to 8,653 miles.

The following track is reported as laid in 1882, though it is possible that a mile or two of it may have been laid before Dec. 31:

Chicago, Milwaukee & St. Paul.—The *Council Bluffs Division* is extended from Rhodes, Ia., west 21 miles, meeting track already laid eastward from Perry.

New York, Susquehanna & Western.—Track laid from Blairstown, N. J., east to Marksboro, 4 miles.

Pensacola & Atlantic.—The first track is laid from Pensacola, Fla., eastward 6 miles.

This is a total of 31 miles, making 39 miles thus far reported for 1882, against 47 miles reported at the corresponding time in 1881.

THE "DANGER POINT" IN FREQUENCY IN TRAINS, or the "limit of elasticity," beyond which a railroad may not be crowded, or should not be without special appliances for preventing collisions, is a subject that needs investigation. It is a tremendously complicated one, certainly, but nevertheless it often becomes necessary to estimate it. When, for instance, should a second track be provided? This, prob-

ably, is oftener decided by the actual impossibility of doing the business on a single track than by considerations of safety: for we have had many instances of single track roads crowded till they could do no more and yet worked with a good degree of safety—at least with few butting collisions. Now, and for some time to come, doubtless, some of the pressing questions will be the introduction of the block system and interlocking signals and switches—costly to provide, and if the blocks are worked by signal-men, as in England, very costly to work. Even in England, where the railroad have cost on an average nearly \$200,000 per mile (against \$58,000 in this country), and where the number of trains is on an average very much greater than here, and the earnings enormously greater, and where the block system was introduced more than 20 years ago, only 65 per cent. of the road is worked on that system. Of course, it will be introduced gradually, first on the most crowded sections of the roads, or rather on the most dangerous sections; for the frequency of trains is but one element of the danger. Now here comes the question, when and where shall this costly system be used? At what places on our road does our barometer indicate danger, or the degree of danger that demands this precaution (or any other out of the common)? Number of trains, railroad crossings, turnouts, straightness of track, nature and speed of trains and various other circumstances have to be considered, and the resulting degree of dangerousness estimated. On one of the New York elevated roads for several months 440 trains were run in each direction daily on a double track without block signals, and without any serious collision, we believe. Trains are run at certain times of the day only a minute and a half apart. To do this on an ordinary railroad with ordinary trains would be to invite disaster. To do it with mixed freight and passenger traffic would be simply impossible. It is possible with no more danger than actually attends it only because the elevated railroad trains are light and run at low speeds, and so are easily stopped within a short distance; they run at uniform speeds; and the road is nearly all straight line, on which the engine-man can almost always see the tail signals of the preceding train, except at the curves at street corners, where special signals are provided. There is scarcely a switch or a turn-out, except at the termini and other starting points, and these are protected by interlocking signals. This is simply an instance to show that the number of trains alone does not determine the degree of danger. The main line of the Hudson River Division of the New York Central has nearly all the passenger trains there are on the Spuyten Duyvil & Port Morris line, on which the terrible accident occurred recently, and in addition a still greater number of freight trains, while the latter is purely a passenger line, and has fewer trains daily probably than some twenty or thirty other sections of road in the country; but it has trains of great weight and speed and of different speeds, and, moreover, it is very crooked, and in places the track is visible but a very short distance ahead, while the rest of the Hudson River line is generally quite straight. The sharp curves in cuts between Spuyten Duyvil and Harlem go toward counterbalancing the great number of freight trains north of Spuyten Duyvil—how far, we will not pretend to say; but the collision of week before last in all probability would not have occurred had the track been straight, in spite of the neglect of the brakeman and others.

And so the "danger point" (which is only relative, for danger of collision begins as soon as there are two locomotives on one road) must be found for each line separately, after considering all the circumstances which affect safety.

CHICAGO SHIPMENTS EASTWARD during the week ending Jan. 14 for three successive years have been:

	1880.	1881.	1882.
Tons.....	31,171	59,587	70,724

Thus the shipments this year were 18½ per cent. more than last year and 127 per cent. more than in 1879. Moreover, they are among the largest shipments ever made in a single week, exceeded in 1881 only in the week ending June 25, which was the first of the railroad war, and in one week of April, and in 1880 only in two weeks of March. These very large shipments were doubtless influenced by reports of an early close of the railroad war and a consequent advance in rates. Of the shipments, 5.3 per cent. went by the Chicago & Grand Trunk, 31.9 by the Michigan Central, 27.2 by the Lake Shore, 18.5 by the Fort Wayne, 14.1 by the Pan-handle, and 3 per cent. by the Baltimore & Ohio. The two Vanderbilt roads have 59.1 per cent. of the whole, against their allotment of 49 in the late pool; the two Pennsylvania roads 32.6 per cent., against 33 in the pool.

For the week ending Jan. 21 the shipments billed at Chicago (the above include shipments from points beyond passing through Chicago) are reported by the Chicago Board of Trade as 60,753 tons, against 55,986 the week before, and 51,075 in the corresponding week of last year. Of the shipments this year 8,105 tons were flour and 37,950 tons grain—more than three-fourths of the whole. The two Vanderbilt roads carried nearly 60 per cent. of the flour and 63 per cent. of the grain, but only 36 per cent. of the provisions, while the two Pennsylvania roads carried nearly 60 per cent. of the provisions, but only 30 per cent. of the flour and 24 per cent. of the grain. The distribution between the two Pennsylvania roads was peculiar. The Fort Wayne had 42½ per cent. of all the provisions shipped, the Pan-handle but 17 per cent.; while the Pan-handle had 22½ per cent. of the flour and the Fort Wayne but 7½ per cent. The transfer of the Erie's business formerly done by the Vanderbilt

roads to the Pennsylvania's lines Jan. 1 has probably had some effect on this distribution, but it does not seem to have reduced the total business of the Vanderbilt roads, which have a larger proportion of the total shipments than before.

We notice elsewhere that the Chicago receipts this month have been extraordinarily large for the season, and this as well as the expected advance of rates has had some effect in making the shipments large. In the two days so far reported since the advance to 25 cents on provisions and 20 on grain and flour, the shipments have been larger than before, and extraordinarily large for the season, though it is not probable that all were made at the advanced rates. The "corner" in the Chicago market, developed this week, will tend to arrest shipments, as prices will be higher, comparatively, there than at the seaboard. But the corner is only in wheat, we believe, and wheat does not form more than one eighth of the grain arriving. Moreover, the high prices that deter shipments attract receipts, and the accumulation will have to be moved some time, and will probably affect shipments considerably before navigation opens.

THE EAST INDIAN RAILWAY at one time could boast of carrying passengers and freight at less cost than any other railroad in the world. We showed a few years ago that the cost per ton per mile was a little less on it than on the Philadelphia & Erie, which had lower rates than any other American road, while its average receipt per passenger per mile was much lower than in European countries even. In 1880 its report shows average receipts of 0.746 cent per passenger per mile and 1.634 cents per ton per mile. The passenger rate is not more than one-third that on the cheaper roads here, but the freight rate is more than twice as great as on many of our roads; but the cost was only 0.27 cent per passenger and 0.482 cent per ton per mile. In 1879 the Philadelphia & Erie reported an average expense per ton-mile of 0.354 cent, the Pennsylvania Railroad (main line and branches) 0.427, the Pan-handle 0.420, the Michigan Central 0.407, the Lake Shore 0.398. But the lowest expense per passenger mile reported then was 1.135 cents, or more than four times as great as the cost on the East Indian. On the latter road there are four classes of passengers, and nine-tenths of them are in the lowest class—carried very much like cattle, we understand, and for extremely low rates. Only one passenger in 189 travels first class. One of the chief reasons of the low cost of carrying passengers may be found in the fact that the average passenger-train load was 269, which is more than four times as great as the average on our best roads. The average freight train load was 151 long tons—169 of our tons of 2,000 lbs. This load is exceeded by all our trunk lines and very many other roads. The average traffic of the road was equivalent to 624 passengers and 660 tons of freight passing over the whole system of road each way daily—a very heavy passenger traffic, and a very considerable freight traffic. The New York Central, with one-third less road, had more than three times as much freight traffic, but only about half as much passenger traffic.

The profit per ton per mile on this road was no less than 1.162 cents, which to our roads, with a fairly large business, would be a veritable bonanza. Such a rate on the New York Central last year would have given it \$30,720,000 of net earnings from freight alone, instead of the beggarly \$5,825,000 which were its actual profits from that traffic. The expense per ton per mile was about an eighth less on the East Indian road, but the receipt was more than twice as great and the profit was more than five times as great, 1.162 cents on the East Indian, against 0.22 cents on the New York Central.

The East Indian Railway is now the property of the government, which guaranteed the stock of the Indian railroads, with the proviso that under certain circumstances and on certain terms it might buy them. The East Indian having become very profitable the government acquired it a few years ago. It does not work it, however, but contracted with the old railroad company to carry on the business as before for a share of the profits, which in the last half of 1880 amounted to about \$280,000.

The traffic statistics of this road are vastly superior to those of the English roads, and are very good indeed.

A STREET-CAR "MAN-CATCHER" has been invented in France by a M. Massillon intended to serve for persons falling in front of cars, somewhat as our cow-catchers do for cattle on the track, only the cow-catcher is intended to protect the train, and not the animal, which is usually killed by it as effectually as if it had been run over, while M. Massillon's "man-catcher" is intended to protect the man and not the car (the latter being in no manner of danger) and therefore contrived to remove the body from before the wheels without injuring it seriously. It consists of a plate-iron apron in front of the wheels, with a rigid frame attached, not to the car-body but to the journal boxes, so as to be always the same distance from the rails. This frame carries a plate-iron plow or shoe, the front of which projects in front of each wheel, and reaches to within 1½ in. of the rails, and which turns aside and away from the car any thing that may happen to lie on the rails. The front guard-plates are hung on springs so as to lessen the shock when they strike a body. The apparatus weighs about 100 lbs. per car and costs (in France) about \$9. Experiments made with a manikin, presented in all sorts of positions, are said to have resulted in throwing it to one side in every case, while the car was going at a smart trot. Further than that, it is reported that the apparatus was placed on a line on August, 1878, and that since there have been fourteen cases when persons have fallen in front of the cars, and in every one they have been thrust out of the way of the wheels by the "man-catcher." The Industrial Society of

the Department of the North has awarded M. Massillon a gold medal for this invention.

There is more need of such an apparatus than might be supposed, the accidents by street cars being mostly of this kind and not few in number. In the last report of the New York State Engineer the street railroad companies of New York report 31 persons killed and 115 injured in the year. (On the steam railroads 11 passengers were killed and 104 injured, to 7 killed and 67 injured on the street railroads.) Many of these were persons who fell on the track, in getting on or off, or were knocked down and run over while attempting to cross in front of a car, and a very large proportion of the victims were little children.

THE NORTHWESTERN GRAIN MOVEMENT has revived wonderfully since New Year's. We have shown from week to week that after September there was a large falling off of the receipts compared with 1880, 1879 and even 1878. For the last three months of the year the receipts of flour and grain at Chicago and Milwaukee were nearly 17,000,000 bushels (28½ per cent.) less than in 1880, and 11,500,000 bushels (21½ per cent.) less than in 1879. But for the first three weeks of January the receipts of these places have been 35½ per cent. more than last year, 30 per cent. more than in 1880, 33½ per cent. more than in 1879, and very much larger than in the corresponding period of any earlier year. In the last week of the three the receipts of these markets were greater probably than ever before in a winter week, and the contrast with the light fall business is remarkable. Speculation very likely had much to do with it; though we believe that there was not much advance in prices until after the period described. The receipts are chiefly corn and oats, the wheat and flour receipts being a trifle less than last year, and the speculation is chiefly in wheat. Shipments do not begin to keep pace with the receipts, though they are large, and on last Monday, the first day of the advanced rates (20 cents per 100 lbs. to New York) were probably the largest of the winter; but probably these shipments were made on contracts at the old rates—contracts for quantities having been made for grain and provisions East, we understand, but not time contracts. These large receipts give better promise of a healthy winter traffic than we have had before; but it is probably too late to get fair winter rates for carrying grain. In about three months navigation will open, and the export demand being light, there is little anxiety to forward grain. It is apparently a question between holding it in the West or at the seaboard. The Chicago and Milwaukee receipts are now more than three times our exports. At this rate, however, the Western elevators will soon be filled, unless there are large shipments. Shipments are and have been large, but the question is whether they will continue so when rates are advanced.

RESPONSIBILITY FOR AN ACCIDENT may attach to a great many people. In the case of the Spuyten Duyvil accident it appears that the express train was stopped, not by the brakes getting out of order, as was first reported, but by some tipsy passenger tampering with them in the car closet, where means of putting them on is provided for use in case of stoppage should be known on the car and not on the locomotive. This person is presumed to be a member of the Legislature, who will probably interest himself in the laws proposed at Albany for preventing railroad accidents. But then the stopping of the train need not have caused an accident, and would not if the brakeman had done his duty and gone back with a danger signal, as the rules plainly prescribe; and so the brakeman is responsible. But probably the brakeman would have gone back far enough if the conductor had ordered him, as the rules prescribe (at least if he had watched him around the corner), and thus the conductor becomes responsible. But if this section of the road had been worked by the block system, as the section but a few miles from it is, then there would have been no approaching Tarrytown train south of Spuyten Duyvil to run into the express; and here we have the company responsible. And each and all are truly responsible.

THE WESTINGHOUSE BRAKE, at the time we wrote of the Spuyten Duyvil accident last week, was universally reported to have "gone on of itself," through getting out of order, and so to have stopped the train and given occasion for the disastrous collision. But it now appears probable from the testimony of the persons on the train, corroborated by an examination of the cars by the brake inspector, that the stoppage was due, not to any defect in the brake, but to the fact that some passenger on the train pulled the safety cord in the car closet, and so put on the brake. If this is true, then of course no part of the blame can fall on the brake, but the whole on the meddling or tipsy passenger, the brakeman, the conductor and the company.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:
Burlington, Cedar Rapids & Northern, annual meeting, in Cedar Rapids, Ia., Feb. 28.
Toledo, Delphos & Burlington, special meeting, in Toledo, O., Feb. 23, to vote on agreements of consolidation with the Toledo, Cincinnati & St. Louis and the Frankfort, St. Louis & Toledo companies.
Cape Fear & Yadkin Valley, special meeting, in Fayetteville, N. C., Feb. 2.
Pullman Palace Car Co., special meeting, in Chicago, Feb. 1, to vote on a proposed increase of stock.

Dividends.

Dividends have been declared as follows:
Richmond & Danville, 2 per cent., quarterly, payable Feb. 15; also an extra dividend of 1 per cent. from the profits of the company's privilege on Virginia Midland stock, payable at the same time.
Pullman's Palace Car Co., 2 per cent., quarterly, payable Feb. 15.

Engineers' Club of Philadelphia.

The fourth annual meeting was held at the rooms in Philadelphia on the evening of Jan. 14, President Strickland Kneass in the chair; 38 members present.
 The annual reports of the Secretary and Treasurer were read, showing the Club to be in good financial condition and an increase of membership of about 50 per cent. during the past year.

The retiring President, Mr. Strickland Kneass, gave a résumé of the progress of engineering works under construction and that are in preparation, not only in our own country and Mexico, but also in Europe and Asia; showing that Mexico is rapidly rising in the scale of nations by introducing internal improvements in the shape of extensive railroad lines, and that the Chinese have at length been convinced that the Barbarians have some ideas that may safely and advantageously be adopted for advancing the interests of the "Flowery Kingdom," and have therefore begun the construction of railroads and telegraphs.

In alluding to electricity and its use for illuminating, the number of inventors and the variety of lamps, both of the arc and incandescent systems, the deep interest the subject claims from the scientist of the day, was shown. As a motor, electricity was also spoken of, and the credit of its earliest adaptation as a motive power was given to Jacobi in his little boat on the Neva in the year 1839.

Compressed air, as a motor, and its practical use for street railways in France, was also referred to.

Allusion was also made to the improvements in the manufacture of steel, so as to obtain a reliable material as a substitute for iron, by the Bessemer, Siemens and basic processes, and the effect produced upon the extensive ore properties of our own state that are now being developed, at large cost for working machinery and connecting railroads.

A short notice of telegraphy was given, showing Morse as the first American who practically applied the magneto-electric telegraph. Underground telegraph lines, it was shown, were in general use in Germany, and were being introduced in France, the credit of which belongs to the Postmaster General of Germany.

The importance of the exhibition of grates and furnaces, constructed to consume smoke and gases, that now escape without adding any value to the combustion, was favorably presented.

His comparison of the state of the art of to-day, as compared with 50 years past, as applied to steamships and railroads, and the faulty prophecies of scientists and business men as to what could not be done, shows the utility of measuring the future by our own limited knowledge of the present.

The tellers of election announced that the following gentlemen had been elected officers for the ensuing year: President, Rudolph Hering; Vice-President, Percival Roberts, Jr.; Secretary and Treasurer, Howard Murphy; Directors, Strickland Kneass, Frederic Graff, T. M. Cleeman, J. J. de Kinder and Wilfred Lewis.

On taking the chair for 1889, Mr. Rudolph Hering said: "I am deeply sensible of the distinction conferred by you in assigning me to a position which has been so worthily filled by my honored predecessors. My grateful acknowledgments are due to you all, and I can only hope that my earnest efforts in behalf of the welfare of our Club will be a proof of my keen appreciation of the signal favor shown me this evening, for which I beg you to accept my heartfelt thanks."

"The Club has just completed the fourth year of its existence, and, owing to the large number of its resident members, already occupies a prominent place among the kindred societies of our country. Its rapid growth has fully confirmed the desirability of a closer professional intercourse among Philadelphia engineers, a point which was placed before us in a strong light during the Centennial Exhibition, when it was not an uncommon occurrence that introductions, even among ourselves, were necessary, when meeting at the headquarters of the American Society of Civil Engineers."

"In my position as a director of the Club for the past three years, I have endeavored, as far as it lay in my power, to promote its interests, and now I shall spare no efforts to still further increase its usefulness, in doing which I shall hope for your hearty support and co-operation."

ELECTIONS AND APPOINTMENTS.

Baltimore & Ohio.—The following circular from President Garrett, announcing an appointment heretofore noted, is dated Baltimore, Jan. 20:

"Mr. John Thomas has this day been appointed General Superintendent of the Chicago Division, with headquarters at Chicago, reporting to the General Manager of the Trans-Ohio division."

Mr. J. M. Hall has been appointed Superintendent of Express for all lines west of Ohio River, with office in Chicago. Mr. Hall has been 17 years on the Allegheny Valley road, for seven years as General Passenger Agent.

Central of New Jersey.—The car record offices at New York, Manchester, N. J., Phillipsburg, N. J., and Mauch Chunk, Pa., are to be closed and the business concentrated in a single office at Elizabeth, N. J., under charge of Samuel Manning, General Car Agent of the road.

Chicago, Burlington & Kansas City.—The officers of this road as now announced are as follows: General Superintendent, John W. Smith; Auditor and Local Treasurer, H. B. Blood; Chief Engineer, H. A. Sumner; General Freight and Passenger Agent, J. H. Best, Jr.; Car Accountant, H. W. Pratt; Chief Train Dispatcher, H. H. Libbe. Offices in Keokuk, Ia. These officers are also the officers of the St. Louis, Keokuk & Northwestern.

Chicago & Grand Trunk.—Mr. E. D. Cole has been appointed General Southwestern Traveling Agent, with headquarters at Chicago.

Chicago, Milwaukee & St. Paul.—Mr. Charles J. Eddy has been appointed Commercial Agent in Chicago in place of C. R. Capron, resigned.

Chicago, Rock Island & Pacific.—Mr. W. J. Lawrence is appointed Train-Master and Chief Dispatcher of the Western Iowa Division, with office in Atlantic, Iowa.

Chicago, Texas & Mexican.—At the annual meeting in Dallas, Jan. 25, the following officers were chosen: President, Charles Howard, Boston; Vice-President, J. T. McAuley, Chicago; directors, Ferdinand Peck, Chicago; J. E. Schneider, A. Saunders, J. B. Simpson, L. N. Fitzhugh, S. J. Adams, Dallas, Tex.; Secretary, A. H. Bennett, Chicago; Treasurer, Henry Bayers, Chicago; General Solicitor, D. M. Tripp, Chicago.

Connecticut River.—At the annual meeting in Springfield, Jan. 18, the following directors were chosen: A. B. Harris, N. A. Leonard, Springfield, Mass.; Wm. Whiting, Holyoke, Mass.; Oscar Edwards, Northampton, Mass.; William B. Washburn, Greenfield, Mass.; Charles S. Sargent, Brookline, Mass.; Augustus T. Perkins, Barnstable, Mass.; Wm. R. Cone, Hartford, Conn.; Frederick Billings, Woodstock, Vt. Messrs. Perkins and Whiting are new directors, succeeding Edward A. Dana and J. M. Spelman.

Delaware.—At the annual meeting in Dover, Jan. 12, the following directors were chosen: Manlove Hayes, Isaac Junap, Dover, Del.; Alexander Johnson, Farmington, Del.; H. B. Fiddeman, Milford, Del.; James J. Ross, Seaford, Del.; Albert Curry, Greenwood, Del.; J. Turpin Moore, Laurel, Del.; Andrew C. Gray, New Castle, Del.; Christian Febiger, Charles Warner, Wilmington, Del.; Samuel M. Felton, Isaac Hinckley, Edmund Smith, Philadelphia. The board re-elected Samuel M. Felton President; Manlove Hayes, Secretary and Treasurer. The road is leased to the Philadelphia, Wilmington & Baltimore Company.

East St. Louis Connecting.—At the annual meeting in East St. Louis, Jan. 10, the following officers were chosen: S. C. Clubb, President; Frank L. Ridgely, Vice-President; S. A. Couteau, Secretary; Henry L. Clark, Treasurer.

Elizabeth City & Norfolk.—The following circular from General Manager M. K. King is dated Jan. 15:

"Mr. Gorham P. Low is this day appointed Superintendent of Road Department (vice L. C. Howes, resigned) in charge of maintenance of way, wharves, docks, buildings, bridges and other structures. His orders in connection therewith will be respected and obeyed."

Engineers' Society of Western Pennsylvania.—At the annual meeting in Pittsburgh, Jan. 17, the following officers were chosen: President, A. Gottlieb; Vice-President, Wm. Thaw, Jr.; directors, A. Dempster, M. V. Smith; Secretary, J. H. Harlow; Treasurer, A. E. Frost.

Forest Park & Central.—At the annual meeting in St. Louis, Jan. 9, the following directors were chosen: E. B. Fox, E. W. Fox, Alvin Robyn, Charles Robyn, A. H. Schultz.

Grand Rapids & Indiana.—The following circular from President W. O. Hugart is dated Grand Rapids, Jan. 1:

"Mr. S. D. Bradley has been appointed Master Mechanic of the Grand Rapids & Indiana Railroad, and all its branches and leased lines, with office at Grand Rapids, Mich. Appointment to take effect this date."

The office of the Master Mechanic has heretofore been at Fort Wayne.

Illinois & St. Louis.—This company has elected James W. Branch President; Adolphus Meier, Vice-President; P. T. Burke, Secretary and Treasurer; J. H. Sharman, General Superintendent.

Indianapolis Union.—At a meeting of the board in Indianapolis last week the following officers were chosen: W. N. Jackson, Secretary and Treasurer; D. W. Whitcomb, Superintendent.

Iowa Trunk Line Association.—The office of Commissioner George H. Daniels will be at No. 105 Monroe street, Chicago.

Jersey Shore, Pine Creek & Buffalo.—At the annual meeting in Connersport, Pa., Jan. 22, the following were chosen: President, Henry Sherwood; Vice-President, George J. Magee; directors, John W. Bailey, Anton Hardt, Jefferson Harrison, Wm. Howell, Jr., Jerome B. Niles, E. G. Schieffelin, Augustus Schell, Walter Sherwood, Wm. H. Vanderbilt, Cornelius Vanderbilt, Wm. K. Vanderbilt; Treasurer, Cornelius Vanderbilt. The company is now controlled by the Vanderbilt interest.

Kansas City, Arkansas & Gulf Air Line.—The directors of this new Arkansas company are: J. G. Botsford, Richmond Hibbard, John McClure, Wm. H. Monaghan, P. K. Roats.

La Crosse & Southwestern.—The new board has elected Joseph Clark President; Charles Michel, Vice-President; R. Calvert, Secretary; G. Van Steenwyk, Treasurer. Office in La Crosse, Wisconsin.

Lehigh & Hudson River.—The directors of this company as consolidated are as follows: Charles Scranton, Oxford, N. J.; James B. Titman, Sparta, N. J.; Garrett A. Hobart, Pateron, N. J.; Frederick A. Potts, Flemington, N. J.; Grinnell Burt, George W. Sanford, Richard Wisner, Warwick, N. Y.; Thomas C. Platt, Owego, N. Y.; George R. Blanchard, D. B. Halstead, John S. Martin, John H. Leed, W. C. Shelton, New York. The board afterwards elected Grinnell Burt President; George R. Blanchard, Vice-President; Thomas P. Fowler, Secretary; D. B. Halstead, Treasurer.

New Mexican.—The directors of this new company are: W. W. Griffin, H. L. Waldo, Santa Fe, N. M.; F. A. Manzanares, Las Vegas, N. M.; A. S. Johnson, George B. Peck, A. A. Robinson, C. C. Wheeler, Edward Wilder, Topeka, Kan.; Otis T. Burr, Alden Spence, Wm. B. Strong, Boston. A majority of these are officers or directors of the Atchison, Topeka & Santa Fe Company.

New York, Lake Erie & Western.—Mr. C. A. Blanchard has been appointed Foreign Freight Agent at Boston. Mr. Blanchard is a brother of Vice-President Geo. R. Blanchard.

New York, New Haven & Hartford.—The board has elected George H. Watrous President; E. M. Reed, Vice-President; E. I. Sanford, Secretary; Wm. L. Squire, Treasurer.

Pennsylvania Company.—Mr. George N. Bruner has been appointed Train-Master of the Cleveland & Pittsburgh road, to succeed Mr. Philip Bruner, promoted to be Superintendent. He has been Train Dispatcher for some time.

Philadelphia & Reading Leased Lines.—At the adjourned annual meetings in Philadelphia, Jan. 23, officers and directors were chosen as follows: *East Pennsylvania*.—President, G. A. Nicolls; directors, J. B. Lippincott, F. B. Gowen, I. V. Williamson, Thomas Hart, Jr., Beauveau Borie, Heister Clymer, George D. Stetzel, J. L. Stichter. *East Mahanoy*.—President, G. A. Nicolls; directors, J. B. Lippincott, I. V. Williamson, Henry Lewis, F. B. Gowen, Eckley B. Coxe, E. C. Knight. *Reading & Columbia*.—President, G. A. Nicolls; directors, J. B. Lippincott, Henry Lewis, I. V. Williamson, F. B. Gowen, J. N. Hutchinson, Eckley B. Coxe, Joseph B. Altamus, Frederick Lauer, Thomas Baumgardner, Samuel Small, Francis W. Christ, Philip Arndt; Secretary, Howard Hancock. *Chester & Delaware River*.—President, G. Nicolls; directors, J. B. Lippincott, F. B. Gowen, Henry Lewis, Eckley B. Coxe, Joseph B. Altamus, Wm. Ward.

Richmond & Danville.—The directors chosen at the adjourned annual meeting in Richmond, Jan. 18, are as follows: President, A. S. Buford; directors, John P. Branch, Joseph Bryan, W. P. Clyde, J. H. Dooley, Gus Milhiser, Wm. H. Palmer, T. M. R. Talcott, Messrs. Milhiser and Talcott are new directors, succeeding A. Y. Stokes and G. W. Perkins. Mr. Talcott is General Manager of the road. The board elected T. M. Logan First Vice-President in

place of Mr. Perkins; T. M. R. Talcott, Second Vice-President, in place of Mr. Stokes; Joseph Bryan, Third Vice-President, in place of Mr. Logan.

St. Louis, Keokuk & Northwestern.—The full list of officers is now as follows: General Superintendent, John W. Smith; Auditor and Local Treasurer, H. B. Blood; Chief Engineer, H. A. Sumner; General Freight and Ticket Agent, J. H. Best, Jr.; Car Accountant, H. W. Pratt; Chief Train Dispatcher, H. H. Libbe. Offices in Keokuk, Ia. The officers are the same as those of the Chicago, Burlington & Kansas City.

St. Louis & San Francisco.—The office of Mr. H. Warner, Car Accountant, will be removed to Springfield, Mo., on Feb. 1. Car and train reports, car tracers and junction reports should be addressed to that place; mileage reports from foreign roads will be sent to the Auditor at St. Louis, as heretofore.

Sandusky, Mansfield & Newark.—This company has elected John Gardner President; Jay O. Moss, Secretary and Treasurer. The road is leased to the Baltimore & Ohio.

St. Paul, Minneapolis & Manitoba.—The title of Mr. H. C. Ives, whose appointment was noted last week, will be General Manager's Assistant.

Scioto Valley.—Mr. George Skinner has been appointed Superintendent.

Tidewater Pipe Line.—At the annual meeting in Titusville, Pa., Jan. 18, the following managers were chosen: R. D. Benson, Franklin B. Gowen, R. C. Hopkins, James R. Keene, A. N. Perrin.

Wabash, St. Louis & Pacific.—Assistant General Superintendent W. F. Merrill will have general supervision of the Roadway Department, including track, fences and right of way. Division superintendents will have charge of this department on their respective divisions. Chief Engineer M. S. Lincoln will have charge of the Bridge and Building departments, including bridges and all structures.

Wisconsin Freight Association.—At the annual meeting in Milwaukee, Jan. 17, the following officers were chosen: President, T. H. Malone, Wisconsin Central; Vice-President, D. W. Keys, Chicago, Milwaukee & St. Paul; Secretary, Louis Blankenhorn, Chicago, Milwaukee & St. Paul; Treasurer, C. H. Knapp, Chicago & Northwestern; Classification Committee, C. G. Eddy, H. F. Whitcomb, A. J. McCormick.

PERSONAL.

—Mr. J. M. Hall, for seven years past General Passenger Agent of the Allegheny Valley Railroad, has resigned to accept a position on the Baltimore & Ohio.

—Mr. John M. Jones, for many years head of the car-building concern of J. M. Jones & Co., formerly of West Troy, and now of Schenectady, died Jan. 18, at his residence in Port Schuyler, N. Y., aged 72 years. Mr. Jones was widely known and respected.

—Mr. Enoch Pratt, of Baltimore, for many years a director of the Philadelphia, Wilmington & Baltimore Company, has offered to give \$1,000,000 to found a free public library in Baltimore, provided the city will establish a permanent annuity of \$50,000 for the purpose of maintaining and increasing the library.

—Mr. Henry Hunter, Master of Transportation of the Virginia & Truckee road, has resigned that office to accept the position of Vice-President of the Chilled Car-Wheel Grinding Co., with office in Chicago. Mr. Hunter's friends and the officers of the road presented him before leaving with a very handsome diamond ring.

—Mr. Franklin B. Gowen, President of the Philadelphia & Reading Company, will shortly make another trip to England for the purpose, it is announced, of completing arrangements for placing the finances of the company on a more secure basis and completing arrangements for a settlement of its present difficulties.

—Mr. Richard P. Morgan died at Dwight, Ill., Jan. 21, aged 92 years. He was probably the oldest civil engineer in the country, and had been employed in the survey and location of many important roads, including the location of the Western (now Boston & Albany) Railroad in Massachusetts. He retained his interest in his profession to the last, although his great age had deterred him from active work for several years past. He leaves two sons, Col. Richard Morgan, of Bloomington, one of the first board of Railroad Commissioners of Illinois, and Mr. Geo. Morgan, of Chicago, who are well-known engineers.

TRAFFIC AND EARNINGS.

Railroad Earnings.

Earnings for various periods are reported as follows:

Year ending Dec. 31:

	1881.	1880.	Inc. or Dec.	P. c.
Nash., Chat. & St. L.	\$2,075,256	\$2,049,423	I.	1.3
Paducah & Etowah	544,720	403,612	I.	34.9
Pennsylvania	44,134,182	41,200,072	I.	6.9
Net earnings	17,114,372	16,635,024	I.	2.9

Eleven months ending Nov. 30:

Carolina Central	\$542,654	\$469,098	I.	15.7
Chi., Bur. & Quincy	19,270,965	18,902,470	I.	1.9
Net earnings	9,567,803	10,220,982	D.	6.4

Month of November:

Carolina Central	\$67,000	\$60,455	I.	10.8
Chi., Bur. & Quincy	1,810,133	1,837,860	D.	1.5
Net earnings	903,132	979,633	D.	7.8
Chi. & West Mich.	118,420	93,570	I.	26.9

Month of December:

Central Iowa	\$99,378	\$81,402	I.	21.9
Nash., Chat. & St. L.	173,127	175,936	D.	1.6
Paducah & Etowah	78,462	60,501	I.	29.6
Pennsylvania	3,731,810	3,547,827	I.	5.2
Net earnings	1,233,236	1,126,252	I.	9.4
Phila. & Reading	1,850,889			

Week ending Dec. 31:

Grand Trunk	\$39,445	\$39,081	I.	0.9
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First week in January:

Mo., Kan. & Texas	\$90,784	\$75,061	I.	19.9
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Second week in January:

Chi. & Eastern Ill.	\$36,862	\$31,408	I.	17.6
Chi., Mil. & St. P.	334,000	253,900	I.	23.7
Chi. & N. W.	389,249	385,351	I.	1.0
Chi. & Gt. Trunk	27,591	20,897	I.	24.9
Col., Hock. Val. & T.	54,362	49,362	I.	10.1
Hann. & St. Jo.	32,827	36,031	D.	9.0
Ind., Bloom. & West.	43,284	43,010	I.	0.6
Louisv. & Nash.	224,840	192,500	I.	16.8
Northern Pacific	55,076	25,709	I.	114.3
St. L. & San Fran.	38,210	48,186	I.	26.1
St. P., Minn. & Man.	102,940	56,543	I.	81.0

Third week in January:

Denver & R. G.	\$102,012	\$75,398	I.	35.3
No. Pacific	50,140	26,938	I.	113.3

Coal Movement.

Coal tonnages for the week ending Jan. 14 are reported as follows:

	1882.	1881.	Increase.	P. c.
Anthracite	584,014	333,523	250,491	75.0
Semi-bituminous	101,198	65,994	35,204	53.3
Bituminous, Pa.	65,374	52,496	12,878	24.5
Coke, Pa.	58,087	51,898	6,189	13.1

It is understood that negotiations are now in progress among the anthracite companies for a partial stoppage in February, to prevent overstocking the market.

Bituminous trade is still reported very active. Less complaint is now made of scarcity of cars.

Bituminous and semi-bituminous tonnages not heretofore reported for the year 1881 are:

	1881.	1880.	Inc. or Dec.	P. c.
East Broad Top	85,768	65,201	I.	31.5
Bellefonte & Snow Shoe	128,203	145,031	I.	135.3
Allegheny Region, Pa.	301,707	296,417	I.	5.290
Penn. & Westmoreland	982,293	914,862	I.	7.431
West Penn. R. R.	296,220	281,494	I.	14.735
Southwest Penn. R. R.	29,548	32,130	D.	2.582
Pittsburgh Region, Pa.	689,483	546,166	I.	143.317
Total	2,513,291	2,190,863	I.	322.428

Coke tonnages reported for the year are as follows:

	1881.	1880.	Increase.	P. c.
Clearfield & Snow Shoe	13,200	13,200		
Allegheny Region, Pa. R. R.	99,046	59,213	39,833	67.5
Penn. & Westmoreland	205,766	134,820	70,946	52.5
West Penn. R. R.	124,421	75,427	48,994	65.0
Southwest Penn. R. R.	1,421,373	1,107,394	314,079	28.4
Pittsburgh Region, Pa. R. R.	551,546	458,649	92,897	20.2
Total coke	2,415,412	1,835,403	580,009	31.6

The increase in coke production continued steadily throughout the year, and promises to continue for some time. A large number of new coke ovens are now being built in the Connellsville and Pittsburgh regions, and a new railroad outlet for the Connellsville Region is under construction.

The coal tonnage of the Pennsylvania Railroad for the year ending Dec. 31, was as follows:

	1881.	1880.	Increase.	P. c.
Coal of all kinds	6,793,743	5,294,571	1,499,172	28.3
Coke	2,415,563	1,794,549	621,014	34.6
Total	9,209,306	7,089,120	2,120,186	29.9

This includes the main line and branches in Pennsylvania, but not the Philadelphia & Erie.

Coal shipments over the Columbia & Puget Sound road and by sea from Seattle, Wash. Ter., for the year were: 1881, 147,418; 1880, 138,497; increase, 8,921 tons, or 6.4 per cent. All the coal went to San Francisco. The business has just begun to increase rapidly and three steam colliers have been put in the trade, which has heretofore been done entirely by sailing vessels.

Switching Charges at Indianapolis.

A meeting of general freight agents of the roads entering Indianapolis was held in that city, Jan. 18, to agree upon some plan by which consignees can be required to pay the cost of delivering cars upon private switches, which now falls entirely upon the railroads. The subject was referred to a committee of three, to report at another meeting. At this meeting it was decided to make a charge of \$1 per car for switching.

Western Trunk Lines Association.

At the meeting in Chicago Jan. 19 the report of the Committee on Discriminations, made at a previous meeting and described in these columns last week, was laid on the table, and a resolution was adopted instructing the Executive Committee to arrange for a conference with the Eastern trunk lines. The policy indicated in the report, it is said, was regarded as too dictatorial.

Chicago and Milwaukee Receipts.

For the first three weeks of January receipts have been for four successive years:

	1879.	1880.	1881.	1882.
Chicago:				
Grain, bu.	4,598,187	5,096,743	3,807,010	6,262,900
Flour, bbls.	185,461	178,387	340,384	321,61
Hogs, No.	767,017	398,063	597,477	593,215

	1879.	1880.	1881.	1882.
Milwaukee:				
Grain, bu.	1,440,705	1,283,051	1,149,000	1,383,710
Flour, bbls.	137,777	115,882	169,468	205,519
Hogs, No.	115,328	47,890	64,234	62,465

The grain receipts have become unusually large, and are increasing from week to week. Reducing flour to bushels the receipts in each of the three weeks at both places have been:

	1879.	1880.	1881.	1882.
Week to				
Jan. 7	2,580,366	3,547,076	2,641,057	2,700,258
" 14	2,632,828	2,111,529	2,358,800	3,514,925
" 21	2,279,968	2,045,389	2,385,418	3,801,230

Three weeks... 7,493,402 7,703,994 7,385,335 10,016,419

In the last week the receipts were nearly 60 per cent. more than last year, and 86 per cent. more than in 1880. For the three weeks they were 35 per cent. more than last year, 30 per cent. more than in 1880, and 33 per cent. more than in 1879.

California Passenger Traffic.

The San Francisco Bulletin reports arrivals and departures of through passengers in California for the year ending Dec. 21 as follows:

	Arrived.	Depart.
By rail	47,107	30,891
By sea	27,506	14,984
Total	74,613	45,875
Total, 1880	48,242	44,181
Increase	26,371	1,694

In 1881, there were 19,231 arrivals and 9,725 departures by sea by the China steamship route, a considerable increase over 1880. These arrivals and departures were nearly all Chinese.

Southwestern Association.

Commissioner Midgley has announced that, in order to equalize rates from the East to Missouri River points, the roads from Chicago will pro-rate on a through rate from Chicago to the Mississippi, accepting 20 per cent. for their proportion, and to this the local rate from the Mississippi to the Missouri will be added. These local rates are in cents per 100 lbs.:

	Class.	Special.
1	2	3
65	50	35
25	25	25

Council Bluffs is now included with Missouri River points.

East-bound Rates.

The tariff of June 15, which went into effect Jan. 23, after 27 weeks of irregular and very low rates, is based on the fol-

lowing rates from Chicago to New York, in cents per 100 lbs.:

	Class.	10.
1	2	3
100	85	70
60	50	45
25	20	30

On lumber the rate is 35 cents, the same as 10 class, though it does not belong to this class: 40 cents is the rate on dressed beef. Grain and flour form the bulk of the eighth class, boxed meats of the seventh, and bulk meats of the ninth. These form probably 98 or 99 per cent. of the total shipments, at least of those from Chicago.

This rate itself is a specially low one, made on account of the cutting of rates in May and June last. But for that and the war, probably the railroads would not have made their rate less than 25 cents on grain at any time last summer, and they might have kept it up to 30 cents, as in 1880.

Grain Movement.

For the week ending Jan. 14 receipts and shipments of grain of all kinds at the eight reporting Northwestern markets, and receipts at the seven Atlantic ports have been, in bushels, for the past six years:

	Northwestern receipts.	Northwestern shipments.	Atlantic receipts.
Year.			
1877	1,632,416	638,319	1,217,472
1878	1,458,086	1,797,607	3,275,956
1879	3,123,153	1,417,268	2,304,162
1880	2,739,444	1,157,345	2,576,622
1881	2,890,312	1,935,330	1,880,410
1882	4,232,751	2,479,443	1,528,637

Both receipts and shipments of the Northwestern markets are larger than in the corresponding week of any preceding year, which has not happened before for a long time. The receipts especially are very large for a winter week; indeed, only once have they ever been larger. They are also the largest receipts since October last, and 56 per cent. more than the week before. The shipments of these markets in this week are also larger than ever before in a week of December, January or February—said to have been stimulated by rumors of an advance in rates. They are the largest since navigation closed, and the largest rail shipments since September. Only 27,145 bushels, or 1.1 per cent. of the whole, were shipped down the Mississippi. The Atlantic receipts were smaller than in any other second week of January since 1877, and with the exception of the week before (when they were a sixth less) are the smallest since March, 1877.

Of the Northwestern receipts Chicago had 44.3 per cent., St. Louis 18.6, Peoria 15.9, Milwaukee 11.4, Toledo 5.1, Duluth 1.8, Detroit 1.6 and Cleveland 1.3 per cent. Duluth usually receives no grain in winter. There are large gains everywhere.

Of the Atlantic receipts New York had 53.8 per cent., Boston 14.9, Philadelphia 12, Baltimore 11.1, Portland 6.5, New Orleans 1.1 and Montreal 0.6 per cent.

Exports from Atlantic ports for the week ending Jan. 18 were 1,175,043 bushels of grain and 83,052 barrels of flour this year, against 1,623,952 bushels and 131,278 barrels last year.

Receipts and shipments at Chicago and Milwaukee for the week ending Jan. 11 were:

	1882.	1881.	Increase.	P. c.
Receipts	2,935,586	1,289,433	1,646,153	127.8
Shipments	1,994,607	903,901	1,090,706	120.4

The receipts last year were greatly reduced by snow blockades, but this year the receipts were positively very large—rarely exceeded in a winter week.

Receipts at four Eastern ports for this week ending Jan. 21 for two years have been:

<i>Bushels.</i>	<i>N. Y.</i>	<i>Boston.</i>	<i>Phila.</i>	<i>Balto.</i>	<i>Total.</i>
1882...	1,257,870	259,826	203,140	178,672	1,899,508
1881	945,784	391,050	333,000	374,692	2,044,726

	P. c. of total.	1879.	1880.	1881.	1882.
1882	66.2	13.7	10.7	9.4	100.0
1881	66.3	19.1	16.3	18.3	100.0

The snow blockade affected New York more than the other places last year, but its percentage this year is exceptionally large; but the total receipts, though larger than for four weeks previous, are still very small.

Lumber.

Receipts and shipments at Toledo for the past two years have been in feet:

	1881.	1880.	Increase.	P. c.
Receipts	294,605,000	236,750,000	57,855,000	24.5
Shipments	270,152,000	212,013,000	58,139,000	27.4

The product of the Saginaw River mills was:

	1881.	1880.	Increase.	P. c.
Feet	965,000,000	873,356,000	91,644,000	10.5

Receipts and shipments at Chicago were:

	1881.	1880.	Increase.	P. c.
Receipts, feet	1,854,029,000	1,519,040,000	334,989,000	22.0
Shipments	1,920,056,000	1,538,021,000	382,035,000	24.8

Colorado Traffic Association.

This is the title of the organization of the roads carrying traffic to and from Colorado between Chicago and St. Louis and Missouri River points. Its rates and classifications, which are the same as those of the Southwestern Railway Association, apply to all business carried to or from the state of Colorado and points on the Denver & Rio Grande Railway to or from any point on the Mississippi River or east thereof.

Ticket Commissions.

Mr. John Egan, General Passenger and Ticket Agent of the Cincinnati, Indianapolis, St. Louis & Chicago Railroad, and Mr. E. B. Byington, General Passenger Agent of the Lehigh Valley Railroad, have issued circulars announcing that, in compliance with the agreement recently entered into by the railroads, they will, after Feb. 1, offer no commissions for the sale of tickets, and will discharge from their service all agents or employes discovered to be bartering in commissions on tickets.

THE SCRAP HEAP.

Locomotive Building.

The Hinkley Locomotive Co. in Boston expects to turn out 14 locomotives a month this year. About 800 men are now employed, and there are many orders on hand.

The Rogers Locomotive Works at Paterson, N. J., recently delivered several engines to the Indiana, Bloomington & Western road.

It is now reported that an offer has been made by responsible parties to establish locomotive works at Youngstown, O., provided the people of that place will give the land and take a certain amount of stock.

The Canadian Locomotive & Engine Co. at Kingston, Ont., intends to turn out at least 60 locomotives this year.

trip is described as follows by the *Syracuse Standard* of Jan. 19:

"The Boston & Chicago express, due in this city at 7.15 o'clock last evening, was drawn from Albany by the famous Fontaine locomotive, and reached the depot of this city at 8.24 o'clock. The engine is one of three of the same pattern, built at the Grant Locomotive Works at Paterson, N. J., and resembles in construction the famous Fontaine engine which drew the Vanderbilt party 111 miles in 111 minutes, last summer, over the Canada Southern Railroad, accomplishing portions of the distance at the rate of 90 miles per hour. In point of time the trial trip of yesterday was not a success. Leaving Albany 13 minutes late, the train, consisting of a baggage car, three coaches and four drawing-room cars, was reported 32 minutes late at Schenectady, 42 minutes at Little Falls, 45 at Utica, and 52 at Rome. When it was known that the train was approaching the city, crowds lined either side of Washington street, and between these lines the Fontaine trundled slowly into the depot, an hour and eight minutes behind schedule time. The locomotive was in charge of Engineer Clapp, who was formerly an employe on the Central road. John Hutchinson made the trip with him as pilot, and following the train, at a short distance, was the 'William H. Vanderbilt,' which accompanied the train along the route to this city."

The engine was to make some trips with freight this week.

Car Notes.

The handsome passenger car which the Jackson & Sharp Co., of Wilmington, Del., sent to the Atlanta Exposition earned the builders a gold medal and special mention for "superiority of workmanship and elegance of finish." The car was sold to the Savannah, Florida & Western Company, and is now running between Savannah and Jacksonville.

The Jackson & Sharp Co. last week shipped three postal cars to the Ohio & Mississippi road and three passenger cars to Texas. Four sleeping cars were also sent to the Wagner Sleeping Car Co., and 12 more are under way. These cars are each 64 ft. in length, are mounted on six-wheeled trucks and are equipped with Miller platforms and Westinghouse brakes. The interiors are finished in mahogany relieved by rich marquetry and elaborately upholstered, the carpets being of velvet and the curtains of raw silk.

The Boston & Albany shops at Allston, Mass., are to build 10 new passenger cars and 100 freight cars.

The car-wheel grinding machines made by the Chilled Car-Wheel Grinding Co. have lately been adopted by the Chicago, Milwaukee & St. Paul and the Canadian Pacific companies.

The Gilbert Car Works in Buffalo, N. Y., have taken a contract to build 200 hopper-bottom coal cars, to carry 20 tons each, for the Buffalo, New York & Philadelphia road.

The Canton Car Works at Canton, O., will soon be ready to begin work on freight cars. The works occupy the old agricultural factory building, which is now being repaired and fitted up.

Noble Brothers & Co. at Rome, Ga., are making 75 car-wheels a day, and also turn out a large number of car axles.

The Norfolk & Western shops in Petersburg, Va., recently turned out a very handsome and completely fitted pay car.

Screw lever dump cars under the patent owned by the United States Car Co., of Boston, are now being built as follows: The Gill Car Co., at Columbus, O., is building 30 for the Columbus, Hocking Valley & Toledo road and 50 for the Cleveland Rolling Mill Co.; the Wells & French Co., at Chicago, is building 30 for the Joliet Steel Co., and the Union Pacific shops at Omaha are building 32 for use on that road.

Bridge Notes.

H. S. Hopkins & Co., of St. Louis, have built recently two bridges over the Des Moines River and 10 other single spans of Howe truss on the Des Moines & St. Louis road.

The Edge Moor Iron Co., near Wilmington, Del., has just completed an iron bridge at Deep Water, on the Western North Carolina road.

The Central Bridge Co. at Buffalo is building an iron bridge at State Line, N. Y., on the New York, Chicago & St. Louis road. This bridge is 160 ft. above high water.

The Keystone Bridge Co. in Pittsburgh is very busy and has a large number of contracts to fill.

The new bridge over the Hudson River from Albany to Greenbush was opened for traffic Jan. 24. The bridge and approaches are 1,600 feet long, with a draw-span 400 feet long, and two fixed spans of 253 feet each, with two floors or decks, one for highway travel, with a double roadway, and the upper floor for a double-track railroad. Only the highway floor is in use at present. Mr. A. P. Boller, Chief Engineer, designed the bridge and supervised its construction; Clarke, Reeves & Co. were contractors for the superstructure, and A. Bonzano for the masonry.

It is reported that new bridge works are to be built in South Chicago, the shops to be a branch of the Rochester Bridge and Iron Works.

Iron and Manufacturing Notes.

The Rue Manufacturing Co. has removed its office and warehouses to No. 904 Filbert street, Philadelphia, and is now increasing its facilities for the manufacture of the "Little Giant" injector. The company gives notice that the patent on the Gresham lifting attachment will expire Feb. 14 next; after that date injectors will be furnished with either the Gresham or the Colvin lifter, as purchasers may prefer.

Etna Furnace, near Ironton, O., has gone into blast after a stop for repairs.

Emma Furnace, at Cleveland, O., has lately been sold and will go into blast early in February.

The New York, Lake Erie & Western Railroad Co. has bought the right to use Flagg's railroad safety gate on its line, and will soon put up gates of this pattern at crossings in Jersey City and Buffalo.

A stock company has been organized at Freeport, Armstrong County, Pa., for the purpose of sinking a gas well. The idea is to sell the gas to the manufacturers in and around Freeport. Arrangements have been completed in all details, and work will commence in a few days.—*American Manufacturer*.

The Potstown Iron Co. has put its furnace at Bechtelsville, Berks County, Pa., into blast.

The Kansas City Rolling Mill supplied the iron rails, 40 lbs. per yard, used on the Denver, Utah & Pacific road.

The Rail Market.

The *Iron Age's* Philadelphia report says of steel rails: "It is difficult to report this branch of business correctly. There is a general impression that a good many parties have bought more than they are likely to require, and that resales or postponements of deliveries will have to be arranged. Manufacturers in this vicinity assure us that so far as they are concerned they have more buyers than they can accommodate, and that sales at \$58 to \$60 can be effected without any difficulty whatever. We have no knowledge of sales at lower prices, and therefore quote the market steady at unchanged prices, say \$58 to \$60 at mill. A sale of 5,000 tons

foreign rails is reported for Mexican delivery, at about \$36 in bond at Gulf port."

Iron rails are quoted at \$48 per ton at mill for heavy rails and \$50 to \$53 for light sections. No large transactions are reported.

Spikes are unchanged at \$9.15 to \$9.25 per 100 lbs.; fish-plates, \$2.60, and track-bolts, \$3.75 to \$4.25.

Steel blooms are quoted at \$46 to \$46.50 per ton, duty paid, with unsettled market and downward tendency.

Old iron rails are a little more active but irregular, at say \$29 to \$31.50 per ton in Philadelphia.

Protecting Car Repairers.

The following order has been issued by General Superintendent H. B. Stone, of the Chicago, Burlington & Quincy road:

"For the better protection of car repairers, while working in yards or on repair tracks, and as a notification to trainmen and switchmen that men are so working, blue flags by day and blue lanterns by night will be used."

"One of these flags (or lanterns) will be placed at each end of the car, or string of cars, undergoing repairs, and cars so protected will under no circumstance be moved or closed up until the man in charge of the job has been notified and given his consent. The above will also apply to repairs being done on the line of the road."

"Any violation of this order should be reported through the regular channel to the Division Master Mechanic, who will notify both the Division Superintendent and the Superintendent of Locomotive and Car departments at Aurora."

Some Profitable Railroads.

The *Buffalo Express* says: "Bradford is the centre of a system of railroads which are without parallel. They zigzag about through a hilly wilderness, which is seemingly without local traffic; yet their annual reports show that they are making money. Buffalo capital is largely invested in these roads, and the direct management and control of some of them rest in Buffalo hands. The capital stock of none of them is more than \$250,000. The Bradford, Bordell & Smethport Railroad has a capital of that amount. It began business in June, 1880. In the following September it began paying a monthly dividend of 2 per cent., and at the end of one year's business had a surplus in the treasury of \$26,510.89. The dividends still continue at the rate of 25 per cent. a year. The Olean, Bradford & Warren Railroad has a capital of \$150,000. Last year it paid a dividend of 30 per cent. to its stockholders, and at the end of the fiscal year—June, 1881—had a surplus of \$18,867.78. The Kendall & Eldred Railroad, on a capital stock of \$150,000, paid in 17 months 12 dividends of 3 per cent., 4 of 6 per cent., and 1 of 10 per cent. on a total of \$105,000. This railroad also owns a plank road which clears \$400 a month. At the end of a year's business the company had a surplus of \$35,531.50. Since the development of the oil field in Allegany County, N. Y., north of the Bradford District, a number of narrow-gauge roads have been completed in that region. None of them have been in operation over three months, and they are paying dividends of 1 and 2 per cent. a month. The business of these narrow-gauge roads is obtained from passenger traffic and the carrying of oil-well supplies and general supplies for oil towns. They carry no oil."

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12 days. This is an average of close upon 3½ miles per day, and it is said that no faster work in the aggregate and in a similar given time has ever been done in railroad building anywhere. Lord Beaumont, who, with Gen. McDowell, accompanied Charles Crocker on a visit to the end of the track, is stated to have remarked, on seeing the way in which the material was handled and the rails laid, that he could not have believed it possible to lay a railroad track with such surprising rapidity. Superintendent Strowbridge, under whose direction the work was accomplished, telegraphed the day following the completion of that section that the 40 miles referred to were completed in every respect and in perfect running order. Fifty additional miles of road will be turned over to the operating department of the company next week, which will make the terminal station on this side about 200 miles east of El Paso.

The gentleman who furnished this information, an official of the company, and one who has just returned from the end of the road, further stated that the country all through that section was entirely destitute of water. To provide it, the Southern Pacific Company have four steam well-boring machines boring for water at different points along the line of the road. The deepest was 200 ft., but no water had been obtained at that depth. The well-borers in charge of the work, and who are said to be experienced men, say that it will be necessary to go down 500 ft., and in some places as much as 1,000 ft., before striking water. In a well which was being sunk at Lordsburg, the workmen got down 500 ft., when, through an accident, they lost their tools at the bottom of the bore. When boring this well, it is represented that they ran through a silver-ore bed. Specimens of the ore were at once procured, and it is alleged, assayed as high as from \$80 to \$100 a ton.—*San Francisco Bulletin*.

The Passenger Agent's Primer.

Who is this pompous-looking man? He is a Passenger Agent. He is very like a lawyer, for he gets his living by telling lies about everybody's road, his own included. He can build more roads and regulate their policy better (in his mind) than either Jay Gould or Vanderbilt. Does he eat doughnuts for breakfast and crackers for dinner to save money for the company? Oh, no, my dear. The company pays for a square meal, just the same; but he has the dyspepsia from reading of the high living in his expense account. He works for the "Best Railroad in the Country," he always does. There is no other road that runs through such a peculiar climate. In winter there is a great deal of verandah on his line, but it is mostly in the passenger cars; and in midsummer, when passengers by other lines are broiling in the heat and suffocated by dust, his passengers are comfortably lolling back in cushioned seats, with light overcoats on. His road is stone ballast, steel rails, patent couplers and buffers, runs all the way in the shade, conductors and brakemen eagerly watching for a chance to hold a crying baby or bring a glass of water to a good-looking lady, and when the train reaches its destination instead of hurrying back to get home, they wait around until the passengers are all bestowed safely away in buses, carriages or other trains. Other roads may claim to do this, but it is not so; his is the only line. Ask him, and he will tell you so. What is that scar on his cheek? It was where he was wounded in the service of his company. He was tackling up a card (showing an enlightened public the advantages of his line), and in his hurry to get the card up he threw the hammer back too far, and it struck him on the cheek, knocking off that piece. Did it dent the hammer? I think not, my child, as they make these hammers extra hard. If you should buy a ticket from him, and find you had to change cars about fourteen times more than he told you about, don't swear at him when you get back. Just go up to him and tell him you are going out again, but don't like his line. He will explain it all, and if you enjoy a good romance you will get it. It would be nice to be a passenger agent if you did not have to tell the truth at all times.—*Cincinnati Enquirer*.

OLD AND NEW ROADS.

Alabama & Georgia.—This company has been incorporated to build a railroad from a point on the Tennessee River in the northwest corner of the state east by south to the Georgia line in the direction of Atlanta. The line is to pass through Florence, and will be about 180 miles long.

Baltimore & Ohio.—Surveys are being made for an extension of the Straitsville Division from Shawnee, O., by New Straitsville, Carbon Hill, Nelsonville and the Monday Creek Valley to Mineral City on the Marietta & Cincinnati road.

Boston & Albany.—There is considerable discussion now going on over a proposal made to sell the stock owned by the state of Massachusetts in this company, about 24,000 shares. The stock can now be sold at about 160 and it is urged that no better time could be found to sell, while there is no special reason why it should retain the stock. The latest plan, which is said to be approved by the company, is that the state sell the stock to the company at 160, taking its pay in a long 5 per cent. bond. As the stock pays 8 per cent., the state would receive the same income as at present, and would have a more certain income than it now has.

Boston, Hoosac Tunnel & Western.—Reports continue to be circulated that this road will not be built west of Schenectady; also that there has been trouble between the company and the Continental Construction Company, which has the contract to build the road. The last report seems to be true. As to the first, President Bart asserts the intention and ability of the company to complete the road through to Buffalo, and says that work will be pushed as soon as spring opens.

Buffalo & Rock City Pipe Line.—This line, which was last year completed to Buffalo, as an independent line from the Bradford Region, has been sold out to the Standard Oil Company, which thus secures control of all the pipe outlets of the region.

Cape Fear & Yadkin Valley.—The Governor's Council has approved the agreement made for the sale of the interest in this road owned by the state of North Carolina to the New York & Southern Railroad & Telegraph Construction Company. The contract made by the Commissioners was formally approved and the Governor was instructed to indorse it. It will now be submitted to the stockholders at a special meeting to be held next week. It will certainly be approved, as the state holds a majority of the stock. Possession will then be delivered as soon as the money is paid over.

Chattahoochee & East Pass.—This company has been organized in Florida to build a railroad from Chattahoochee southward to the mouth of the Apalachicola River. It will be about 64 miles long, and will be an extension of the Savannah, Florida & Western, whose main line is now being extended from Bainbridge to Chattahoochee.

Chicago & Alton.—In the Circuit Court at Springfield, Ill., last week, Judge Zane rendered a decision in the suit instituted last year to test the legality of certain pooling

contracts entered into by the Chicago & Alton Railway, the Wiggins Ferry Company, the Madison County Ferry Company and the St. Louis Bridge & Tunnel Company, in reference to the transportation of freight and passengers across the river at St. Louis. The opinion is very elaborate, and takes the ground that the people cannot be deprived of the benefit of competition between rival lines by contracts between such which may be used to advance private interests at the expense of the public welfare.

Chicago, Burlington & Quincy.—The company has given orders that annual or other passes will be good for trips between Chicago and Downer's Grove and intermediate points, this being the part of the road on which it has suburban traffic. It is said that a very considerable proportion of the inhabitants of these places are holders of annual passes, and that the suburban trains have consequently earned very little money.

Chicago & Eastern Illinois.—This company has completed and opened for business a new branch, leaving the main line at Willington, Ill., 30 miles north of Danville, and running to Cissna, 13 miles. The stations on the new branch are Lyford, Coodwine, Claytonville and Cissna.

It is stated that the Louisville & Nashville has finally secured a controlling interest in this road, which carries with it the control of the Evansville, Terre Haute & Chicago and the Evansville & Terre Haute roads. It is said that the whole line from Chicago to Evansville will probably pass under the Louisville & Nashville management in April.

Chicago & Grand Trunk.—At a meeting of the stockholders and general officers of the Chicago & Grand Trunk Railway (who are also stockholders and general officers of Grand Trunk Railway of Canada), held at Chicago, Jan. 18, to confirm a traffic agreement between the two companies, a vote was taken sanctioning the creation of a second mortgage on the property of the Chicago & Grand Trunk Railway to the amount of \$6,000,000. Of the bonds to be issued under this mortgage, \$2,500,000 will be used to take up a corresponding amount of bonds used some time ago, and which bear 7 per cent. interest. The new second mortgage bonds bear 5 per cent. interest.

Chicago, Milwaukee & St. Paul.—The new Council Bluffs Division has reached Perry, Ia., the Keokuk & Des Moines crossing, 137 miles westward from Marion. Trains will soon begin to run to Perry; they now run to Rhodes, 86 miles from Marion.

The following notice has been issued: "The undermentioned lines of this company's railway will hereafter be designated and known as the Mineral Point Division: Between Milton Junction and Shullsburg, between Warren and Mineral Point, between Calamine and Plattsville, between Brodhead and Albany, and between Janesville and Beloit."

Chicago, Portage & Superior.—A statement is telegraphed from St. Paul that this company has sold out to the Chicago, St. Paul, Minneapolis & Omaha. The company was organized some years ago, but did little or nothing. About a year ago it was revived and a contract for building the road from Chicago to Ashland, Ill., was let to the Anglo-American Construction Company, a corporation which claimed to have abundant capital, supplied chiefly by English parties interested in the Grand Trunk. This company has done some grading on the line. The company claimed a share in the old St. Croix land grant.

The stockholders in New York claim that the transfer made by Western stockholders was not valid, and will be contested. The Western men claim that theirs is the only legally paid up stock, and do not recognize the New York stock as valid or entitled to control the company. There will probably be a contest over the road.

A dispatch from Chicago, Jan. 25, says: "Mr. H. H. Porter, President of the Chicago, St. Paul, Minneapolis & Omaha Railroad, denies emphatically that his company has bought the Chicago, Portage & Superior Railway. The opinion is to-day freely expressed among railway officers that the Rock Island Company is the actual purchaser of the Chicago, Portage & Superior road, and that the Rock Island proposes to build a road from its main line North to Lake Superior."

Denver & New Orleans.—A dispatch from Denver, Col., Jan. 21, says: "The resident stockholders of the Denver & New Orleans Company last night unanimously voted to subscribe \$1,050,000 to complete the road to Pueblo, and the sum of \$600,000 was subscribed on the spot, each man present subscribing *pro rata* according to his interest in the road."

Denver, Utah & Pacific.—The main line of this road is now completed from Denver, Col., to Halleck Junction, 10 miles, and the Mitchell Branch from Halleck Junction to the Mitchell coal mines, 13 miles, making 23 miles out of Denver. Regular trains have begun to run over this section. The track from Denver to Mitchell is used also by the Denver, Longmont & Northwestern road. From Halleck Junction the main line is graded to the South Boulder Cañon, 15 miles, and work is in progress on two tunnels in the cañon, the first 8,300 and the second 10,585 ft. above sea level. The road will run 23 miles through the cañon and then enter the Middle Park, across which it will run. Its destination is Provo, Utah, with a further extension to California.

Hartford & Connecticut Valley.—Proposals will be received at the office of this company in Hartford, Conn., until noon of Feb. 14, for the grading, masonry and bridging of the extension from Hartford north to Springfield, Mass., 24 miles. Bids will be received for the whole work or for sections. Plans, profiles and specifications can be seen at the engineer's office in Hartford after Feb. 7.

Hudson Tunnel.—Work on the tunnel under the Hudson River is progressing very satisfactorily. On the headings from the New Jersey shore about 250 men are now employed. About 40 ft. of tunnel work has been completed this month, and the officers of the company expect to complete about 90 or 100 ft. before Feb. 1. The heading of the north tunnel is now out about 300 ft. beyond the air-locks, or 800 ft. beyond the working shaft. The south tunnel is out about 250 ft. beyond the air-locks, and the work is now going forward at the rate of about five feet a day in both headings. In a few days work on the north tunnel will be suspended in order that the air-locks may be shifted forward, nearer to the heading. This is done in order to keep up a sufficient pressure of air in the heading. Work on the south tunnel will be continued, until the heading is even with the present heading of the north tunnel, and then the air-locks in this tunnel will also be shifted forward about 300 ft.

In both headings the men are now working through a stratum of heavy clay, which yields easily to the pick, but is firm enough to prevent the compressed air escaping and at the same time prevent the water from entering the heading.

On the New York side of the river the caisson has been sunk to within seven feet of the line of the bottom of the tunnel, and is sinking at the rate of about 12 to 18 in. a day. The officers in charge of the work say that the sinking of the caisson will be completed in about a week. The next thing will

be to build inverted arch of brick beneath the caisson to keep the sand from entering. This will probably be completed in a week or ten days, and then spaces will be cut in the sides of the caisson fronting the river, through which the tunnel headings will begin.

The sinking of the caisson has been considerably delayed by a bed of cobble-stones about four feet thick, which were not large enough to be blasted, and had to be passed out by hand through the air-lock at the top of the caisson. The excavations for the approaches will not begin until next summer or autumn.

Illinois Central.—Mr. A. H. Hanson, General Passenger Agent, has just issued the following circular regarding the sale of 1,000 mile tickets: "On and after Feb. 1, 1882, and until further notice, mileage tickets of this company's issue will be sold as follows: Regular 1,000-mile ticket, good until used, non-transferable, \$25. They can be purchased at the following points: Central Depot, city office, Twenty-second street, Chicago; Kankakee, Champaign, Mattoon, Centralia, Cairo, St. Louis, Pana, Decatur, Bloomington, Springfield, Freeport, Dubuque, Waterloo, Cedar Falls, Ft. Dodge and Sioux City. Commercial 1,000-mile ticket, good over the entire line, \$25, with a rebate of \$5. They will be issued as formerly (only at the discretion, and on the order of the General Freight Agent), and are good until used, but claim for rebate must be made within six months from date of issue, otherwise it is forfeited. The limit for payment of this rebate will not be extended beyond six months under any circumstances. The contract on inside of back cover of ticket must be signed in ink by the person in whose favor ticket is issued, before being presented to conductors, as instructions have been given for them to refuse to honor unsigned tickets, and oblige those presenting them to get off the train at first station and sign them. The Iowa tickets sold previous to Jan. 1, 1882, will be honored in Illinois."

Jacksonville & Southeastern.—It is stated that this company has decided to extend its road from Litchfield, Ill., southeast to Centralia on the Illinois Central. The distance is about 50 miles.

Jersey Shore, Pine Creek & Buffalo.—It is announced that the large interest in this company owned by the Philadelphia & Reading Company has been transferred to Mr. Vanderbilt, who in turn repays the money spent by the Reading and agrees to complete the road as soon as possible. It is to run from Williamsport, Pa., to Port Allegheny on the Buffalo, New York & Philadelphia road. Under the new management it may be extended from Port Allegheny to Warren and the Dunkirk, Allegheny Valley & Pittsburgh, and a branch will probably be built to Antrim. It will be used to complete the connection between the Reading and the Vanderbilt roads.

Kansas City, Arkansas & Gulf Air Line.—This company has been organized to build a railroad from the southern boundary of Arkansas northward on a line parallel to the western boundary of the state to the Missouri line. The distance is stated at 220 miles.

Lehigh & Hudson River.—A consolidation of this company and the Warwick Valley Company has been agreed upon, the name of the consolidated company to be the Lehigh & Hudson River. The line is to run from Greycourt, N. Y., to Belvidere, N. J. Part of this, from Greycourt to Hamburg Junction, N. J., is completed and the rest, from Hamburg Junction to Belvidere, is under construction, with 18 miles laid with track. The company is also building a branch to the Jenny Jump mine, and will build several spurs to other mines near the line. The road completes a line from Belvidere to the Hudson River at Newburg.

Macon & Brunswick.—Tracklaying is now in progress on the extension of this road from Macon, Ga., to Atlanta, and the grading is advancing steadily. There are no very important bridges on the line, and that part of the work can quickly be finished up. The distance from Macon to the station in Atlanta is 87½ miles, and it is expected that the line will be ready for use by June. The stations, so far as located, with the distances from Macon, are as follows: Holston, 8¼ miles; Dames' Ferry, 15; Iceberg, 21; Towaliga, 25; Indian Spring, 36¼; Jackson, 41¼; Locust Grove, 51¼; McDonough, 59¼; Stockbridge, 69¼; Atlanta, 87½. Others are to be established.

Manhattan Elevated.—The Attorney General of New York denied the application to bring suit by the people to annul the charter of the Manhattan Railway Company. In a memorandum of his decision the Attorney General says that the state has recognized the existence of the Manhattan Company by accepting taxes therefrom. He observes that the State Engineer authorized the increase of capital, which was also an acknowledgment that the company had a valid existence. He lays special stress on the fact that the suit brought by Attorney General Ward was based only on the assumption that the corporation was insolvent. He holds that this suit in itself recognized the Manhattan Company as a valid corporation, and he contends that as it is now solvent, the former proceedings are of no account so far as the present issue is concerned. The Attorney General concludes as follows: "As the record stands at present I am, therefore, of the opinion that the people cannot successfully maintain the action desired to be instituted, and that as to them the Manhattan Company is an established fact. I cannot, therefore, conscientiously advise the Court that the action would be successful, and ask leave to begin it. The application is accordingly denied."

At a meeting of the Governing Committee of the Stock Exchange in New York, Jan. 25, the question of admitting to dealing the new stock of the Manhattan Railway Company, which it is proposed to exchange for the present stocks of the New York and Metropolitan companies, was discussed. It was finally voted that the new stock should be admitted whenever a majority of the stock of the New York or Metropolitan Company had been converted into the new stock, provided that the old stock so exchanged should be properly stamped, to prevent a fraudulent reissue, and should then be deposited in a trust company to await the result of all litigation. After a majority of the stock of either company has been exchanged, the new stock is to be admitted, and the same amount of old stock stricken from the list and after that the new stock will be admitted and like amounts of old stocks stricken off the list as exchanges may be made from time to time.

Mansfield & Taunton.—It is proposed to build a railroad from Taunton, Mass., to Mansfield, about 12 miles, and the sum of \$70,000 in subscriptions has already been secured. The line will be parallel to the Old Colony line between the two towns.

Michigan Central.—This company is now running through trains from Detroit to Mackinaw, whence connection made by ferry to the Detroit, Mackinac & Marquette road. Through rates are now made from Detroit to Marquette and other points in the Lake Superior country, to which the only rail route heretofore has been by way of Chicago and the Chicago & Northwestern road.

Nashville, Chattanooga & St. Louis.—This company makes the following statement for December and the six months of its fiscal year from July 1 to Dec. 31:

	December.	Six months.
Gross earnings.....	\$173,177	\$966,033
Expenses.....	94,065	602,253
Net earnings.....	\$78,462	\$393,778
Interest and taxes.....		268,942
Surplus.....		\$124,836

As compared with last year, December shows a decrease of \$2,869, or 1.6 per cent., in gross earnings, and an increase of \$17,471, or 28.6 per cent., in net earnings. For the half year the gross earnings decreased \$28,710, or 2.8 per cent., and the net earnings \$10,463, or 2.6 per cent.

New Mexican.—This company has filed articles of incorporation in New Mexico. The names of the incorporators are chiefly those of officers of the Atchison, Topeka & Santa Fe Company. The object of the company is apparently to build a net work of railroads covering every point in New Mexico the traffic of which can now or promise hereafter to yield traffic for a road. The certificate of incorporation covers 18 lines and a number of short branches. The capital stock is fixed at \$37,000,000.

New Milford & Danbury.—A preliminary organization has been completed by this company, which proposes building a railroad from New Milford, Conn., south by way to Danbury, about 15 miles. The proposed line is west of the Housatonic road, but generally parallel to it.

New York & Boston Inland.—A petition has been filed with the Secretary of State of Connecticut for the incorporation in that state of the company which is to build the projected new air line from New York to Boston. The route named in the petition is from the New York line in the town of Greenwich to the Rhode Island line in Voluntown, crossing the Connecticut River near Essex and passing through Norwich. The petition is signed by Marshall Jewell, J. E. Redfield, Charles Mitchell, Charles L. Smith and Henry R. Towne.

New York, Lackawanna & Western.—This company finds its entrance into the city of Buffalo opposed at every point by the other roads entering the city and also by some local interests. Its petition for leave to cross and use certain streets is now before the City Council, and the committee to which it has been referred will probably be busy for some time in hearing evidence and arguments. It is possible that the road will get into Buffalo only after a long fight, and a line will probably be built around the city to Tonawanda.

New York, Pennsylvania & Ohio.—The following circular was last month issued from the London agency of this company:

"The directors of the above-named company have communicated to the voting trustees in London that no part of the first mortgage coupon, due Jan. 1, 1882, will be paid in cash. Knowing the disastrous effects on the great bulk of the company's earnings, occasioned by the war of rates, the trustees cannot affect surprise at this issue. They have carefully investigated, on the spot, through one of their number, the grounds of the directors' decision (as to the months of November and December only estimated), and find that the expected surplus of nearly \$300,000, after full providing for the interest on the prior lien bonds, will not be available for division. It should be stated that, in addition to making a substantial payment on account of additional rolling stock, to be paid for over seven years, \$117,000 of the surplus consists of Sharon Railway stock, taken in payment of freight, as stipulated when the Sharon Branch was made, which it is most advisable to keep, with all previously acquired, as insuring control of that line, and that \$70,000 is required for the settlement of an old disputed claim which must be paid by this company in order to preserve the valuable Mahoning lease. Coupons may be left on and after Jan. 2, and the deferred interest warrants (convertible in the month of May next into bonds) will be issued on and after Feb. 16, between the hours of eleven and two, Saturdays excepted."

New York, Susquehanna & Western.—Work has been in progress for some time on the former Blairstown Railroad, which this company bought and will use as part of its extension to the Delaware. Track has been laid from Blairstown, N. J., east to Marksboro, four miles.

Northern Pacific.—Track on the Pend d'Oreille Division is reported laid to Lake Pend d'Oreille, 209 miles from the starting point at Ainsworth, on the Columbia. Work was progressing on the long trestle bridge across the lake. As soon as that is finished, tracklaying will be resumed.

Old Dominion Steamship Co.—It is announced that a controlling interest in this company has been sold to a syndicate composed of stockholders of the Norfolk & Western, the Chesapeake & Ohio and the Seaboard & Roanoke companies. The new owners will continue and improve the line and will add several steamers, so as to make a daily line from New York to Newport News and Norfolk. The company has a fleet of excellent steamers and has done a very good business.

The company also owns the Junction & Breakwater road in Delaware and its branches. These roads, however, have no connection with the Virginia lines.

Peach Bottom.—The United States Circuit Court has confirmed the sale of the Middle Division, from York, Pa., to Delta, made under foreclosure a short time since. The purchasers are a committee representing the stockholders.

Pennsylvania.—This company's statement for December shows for all lines east of Pittsburgh and Erie, as compared with December, 1880:

An increase in gross earnings of.....	\$183,983
An increase in expenses of.....	106,984
Net increase.....	\$76,999

For the twelve months ending Dec. 31, as compared with the corresponding period in 1880, the same lines show:

An increase in gross earnings of.....	\$2,864,110
An increase in expenses of.....	2,084,702
Net increase.....	\$779,348

All lines of the company west of Pittsburgh and Erie for the twelve months of 1881 show a surplus over liabilities of \$2,713,152, being a loss as compared with the corresponding period in 1880 of \$358,900.

Pensacola & Atlantic.—The tracklayers, who began work Jan. 1, last week reached a point six miles eastward from Pensacola, Fla., and are advancing steadily. Tracklaying will soon be begun at several other points.

Peoria & Illinois River Shore Line.—This company has filed articles to build a railroad along the shore of the Illinois River through Peoria, the line to be about six miles long. It is apparently intended as a belt or connecting line.

LOCOMOTIVE RETURNS, SEPTEMBER, 1881.

Master Mechanics of all American railroads are invited to send us their monthly returns for this table.

NAME OF ROAD.	Miles operated.	MILEAGE.		MILES RUN TO TON OF COAL.	AVERAGE TON OF COAL.	AVERAGE TON OF COAL.	COST IN CENTS PER MILE.		COST PER MILE IN CENTS FOR.		AVERAGE COST OF.		
		Total.	Average per engine.				Passenger cars.	Freight car mile.	Passenger cars.	Freight car mile.	Coal per ton.	Wood, per cord.	
Allegheny Valley, River Div.*	130	94,369	3,350	39.92	14.84	3.80	29.50	3,950	0.952	7.05	4.36	0.57	6.41
Low Grade Div.*	130	45,680	2,000	34.06	16.25	3.20	21.60	2,862	0.866	2.48	3.41	0.76	6.41
Central Pacific, Western Div.*	300	88,461	2,650	57.25	16.84	10.57	3.00	11.57	0.52	0.32	2.19	22.83	7.10
Northern & San Pablo Divs.*	104	80,711	2,568	42.80	17.50	10.57	8.00	16.05	0.52	0.32	7.71	34.00	7.10
Visalia Div.*	167	42,691	2,036	43.08	20.40	10.57	3.38	18.54	0.49	0.04	7.68	30.07	7.10
Tulare Div.*	147	37,432	2,675	38.20	19.92	10.57	6.97	28.14	0.48	0.17	7.71	41.50	10.15
Los Angeles, San Diego	416	106,453	3,327	41.06	15.96	10.57	3.28	21.81	0.57	0.35	7.04	33.00	10.15
Yuma & Wilm. Divs.*	555	171,057	3,108	46.25	16.55	10.57	2.27	21.83	0.55	0.30	5.81	17.25	10.15
Gila & Tucson Divs.*	179	104,000	2,804	42.67	16.41	10.57	3.39	18.65	0.50	0.60	4.84	22.71	7.10
California Pacific Div.*	40	6,872	2,391	38.04	18.04	10.57	6.75	6.61	0.34	0.18	5.08	19.00	4.50
Stockton & Copperopolis	119	101,922	2,427	25.37	19.78	10.57	5.54	17.74	0.46	0.31	8.83	32.88	4.50
Sacramento Div.*	151	72,073	3,725	46.18	25.21	10.57	2.79	9.54	0.36	0.08	7.81	20.12	4.50
Oregon Div.*	300	77,283	2,576	39.71	16.82	10.57	3.20	18.15	0.47	0.39	5.80	20.37	7.10
Truckee Div.*	290	11,977	2,584	39.02	19.11	10.57	7.00	20.84	0.47	0.39	6.60	37.37	7.10
Humboldt Div.*	219	77,379	2,826	31.02	16.83	10.57	8.25	22.87	0.55	0.94	7.22	39.13	7.10
Salt Lake Div.*	160	113,759	3,500	35.00	14.00	10.57	3.00	4.40	0.50	0.00	6.60	13.50	4.50
Chi. & Eastern Ill. Main Line	250	201,712	2,192	42.31	18.00	10.57	3.90	19.50	0.40	0.40	4.70	17.50	2.00
Terre Haute Div.*	157	236,83	2,677	47.33	17.07	10.57	3.22	3.21	0.62	2.36	6.43	15.84	1.42
Cleveland & Pittsburgh	157	67,500	2,560	37.57	13.25	10.57	3.66	1.78	0.61	0.00	6.13	12.16	0.67
Cleve., Tus. Val. & Wheeling	80	77,239	2,891	40.97	14.72	10.57	2.45	10.02	0.62	0.00	4.58	7.65	1.82
Dela., Lacka. & Western	98	201,712	2,781	40.97	16.02	10.57	3.40	17.80	0.70	0.00	6.48	14.16	1.82
Bloomington Div.*	382	126,981	3,061	41.00	16.72	10.57	3.96	8.05	0.52	2.51	5.51	19.95	3.55
Grand Rapids & Indiana	382	2,854	2,000	75.30	15.01	10.57	3.99	4.75	0.33	0.00	5.83	14.87	1.00
Illinois Central, Chicago Div.	191	107,147	2,087	49.55	18.58	10.57	1.64	4.66	0.24	0.00	6.31	17.01	1.77
Middle Div.*	345	130,337	2,620	39.21	15.94	10.57	4.29	32.05	0.30	0.30	5.02	16.85	1.00
North Div.*	113	11,977	2,417	31.08	15.04	10.57	2.44	4.22	0.37	0.00	4.87	11.90	1.40
Springfield Div.*	401	117,096	2,402	30.23	15.51	10.57	3.23	7.88	0.31	0.00	5.90	17.12	2.50
Iowa Div.*	229	121,807	2,900	34.71	14.23	10.57	3.04	7.77	0.28	2.48	5.90	20.37	2.50
Jenn., Madison & Indianap.	441	128,074	3,146	46.80	15.20	10.57	3.30	17.40	0.30	0.00	5.90	14.50	2.50
Kan. City, St. Jo. & Coun. Bl.	80	900,922	2,338	36.64	15.02	10.57	3.88	7.28	0.27	0.00	6.13	17.58	2.60
Lake Shore & Mich. Southern	80	303,674	2,477	37.34	20.64	10.57	4.23	7.35	0.31	0.31	6.13	17.58	2.60
Buffalo Div.*	80	201,712	2,781	40.97	16.02	10.57	3.40	17.80	0.70	0.00	6.48	14.16	1.82
Buffalo Div.*	80	201,712	2,781	40.97	16.02	10.57	3.40	17.80	0.70	0.00	6.48	14.16	1.82
Little R.R., Miss. Riv. & Texas	155	101,922	2,427	25.37	19.78	10.57	5.54	17.74	0.46	0.31	8.83	32.88	4.50
Louisville & Nash, First Div.**	436	161,671	2,677	30.71	16.79	10.57	4.16	16.81	0.32	1.90	5.51	19.95	3.55
Second Div.**	200	104,000	2,804	42.67	16.41	10.57	3.39	18.65	0.45	0.60	4.84	22.71	7.10
Memphis Div.*	139	101,922	2,427	25.37	19.78	10.57	5.54	17.74	0.46	0.31	8.83	32.88	4.50
Nash. & Decatur Div.**	122	101,922	2,427	25.37	19.78	10.57	5.54	17.74	0.46	0.31	8.83	32.88	4.50
South & North Ala.*	180	104,000	2,804	42.67	16.41	10.57	3.39	18.65	0.45	0.60	4.84	22.71	7.10
Mobile & Montgomery**	180	104,000	2,804	42.67	16.41	10.57	3.39	18.65	0.45	0.60	4.84	22.71	7.10
St. Louis Div.*	307	85,976	2,684	40.32	13.94	10.57	2.23	17.72	0.35	0.13	5.74	15.03	1.55
Ev. Hen. & Nash. Div.*	135	9,715	2,510	29.44	13.95	10.57	2.37	11.46	0.50	0.98	6.58	16.83	1.99
New Orleans Div.**	141	60,638	3,316	45.69	13.70	10.57	4.23	16.82	0.34	0.93	5.74	15.03	1.55
Pensacola & Selma Divs.**	141	60,638	3,316	45.69	13.70	10.57	4.23	16.82	0.34	0.93	5.74	15.03	1.55
Marquette, Hough. & Ont.	80	63,161	2,178	42.99	21.72	10.57	0.88	10.21	0.48	0.00	6.02	17.25	2.60
N. Y. Pa. & O., Eastern Div.	225	328,743	2,877	41.00	12.91	10.57	2.87	6.23	0.61	0.00	6.30	16.01	2.04
Western Div.*	197	261,212	3,344	47.48	22.01	10.57	7.40	17.50	0.34	0.44	5.87	17.01	1.96
Mahoning Div.*	147	114,904	2,446	30.12	18.52	10.57	3.91	5.97	0.50	0.00	6.27	16.63	1.90
No. Cent., El. & Can. Divs.	213	101,922	2,427	25.37	19.78	10.57	5.54	17.74	0.46	0.31	8.83	32.88	4.50
Ohio Central	139	101,922	2,427	25.37	19.78	10.57	5.54	17.74	0.46	0.31	8.83	32.88	4.50
Pennsylvania, N. Y. Div.**	139	101,922	2,427	25.37	19.78	10.57	5.54	17.74	0.46	0.31	8.83	32.88	4.50
Amboy Div.**	51	118,742	2,317	48.27	14.01	10.57	6.90	4.70	0.70	0.00	12.80	1.30	2.72
Belvidere Div.**	40	77,480	1,890	35.56	10.64	10.57	3.90	9.10	0.70	0.00	13.00	3.20	3.86
Philadelphia Div.*	200	145,235	3,391	26.74	12.63	10.57	11.60	4.70	0.70	0.00	17.00	1.30	2.72
Middle Div.**	152	101,922	2,427	25.37	19.78	10.57	5.54	17.74	0.46	0.31	8.83	32.88	4.50
Altoona Div.**	172	101,922	2,427	25.37	19.78	10.57	5.54	17.74	0.46	0.31	8.83	32.88	4.50
Pittsburgh Div.**	172	101,922	2,427	25.37	19.78	10.57	5.54	17.74	0.46	0.31	8.83	32.88	4.50
Tyone Div.*	127	90,715	2,500	21.81	16.18	10.57	4.20	5.70	0.50	0.00	10.40	1.20	2.72
West Penn. Div.**	104	81,607	2,236	33.32	14.48	10.57	6.50	3.70	0.30	0.00	10.80	1.20	2.72
Lewistown Div.**	83	81,607	2,236	33.32	14.48	10.57	6.50	3.70	0.30	0.00	10.80	1.20	2.72
Bedford Div.**	57	14,971	2,139	34.48	22.52	10.57	1.09	4.00	0.40	0.00	5.40	1.20	2.72
Frederick Div.*	109	11,977	2,417	31.08	21.04	10.57	1.50	3.90	0.50	0.00	5.10	1.20	2.72
Monongahela Div.*	14	28,024	2,518	41.72	14.45	10.57	3.90	2.70	0.50	0.00	7.10	1.20	2.72
Pitts., Ft. Wayne & Chicago	383	146,913	3,191	39.11	18.37	10.57	5.40	17.20	0.924	2.41	4.62	6.38	15.80
Eastern Div.*	280	119,390	2,211	33.91	17.10	10.57	7.20	22.40	1.910	0.602	2.84	0.96	1.93
Western Div.*	382	146,913	3,191	39.11	18.37	10.57	5.40	17.20	0.924	2.41	4.62	6.38	15.80
Pitts., Cin. & St. Louis	197	121,558	3,225	43.11	12.90	10.57	5.16	18.75	2.507	0.940	4.94	4.70	7.73
Little Miami Div.*	107	81,607	2,236	33.32	14.48	10.57	6.50	3.70	0.30	0.00	10.60	1.30	2.72
P. C. & St. L. Div.*	247	103,973	3,204	43.11	9.00	10.57	2.88	6.92	0.48	0.00	5.74	15.07	2.38
St. Louis & San Francisco	406	103,973	3,204	43.11	9.00	10.57	2.88	6.92	0.48	0.00	5.74	15.07	2.38
Wabash, St. L. & Pacific	040	103,973	3,204	43.11	9.00	10.57	2.88	6.92	0.48	0.00	5.74	15.07	2.38
Peoria & Iowa Div.	103	103,973	3,204	43.11	9.00	10.57	2.88	6.92	0.48	0.00	5.74	15.07	2.38
West Jersey**	103	103,973	3,204	43.11	9.00	10.57	2.88	6.92	0.48	0.00	5.74	15.07	2.38

* Five empty cars rated as three loaded ones.
 + Switching engines allowed 6 miles per hour; helping engines, actual distance run.
 + Switching engines allowed 6 miles per hour.
 + Fuel not estimated.
 + Two empty cars rated as one loaded one.
 + Three empty cars rated as two loaded ones.

* Switching engines allowed 6 miles per hour; five empty cars rated as three loaded ones.
 + Engineers', firemen's and wipers' wages not included in cost.
 + Switching and work-train engines allowed 6 miles per hour.
 + The ton of coal is 2,000 lbs., unless otherwise noted; 25 bushels counted as a ton.
 + Repairs generally include all shop expenses.

Philadelphia & Reading.—Since the late election McCalmont Brothers have transferred their entire holding of some 157,000 shares to Kipper, Peabody & Co., who have sold most of the stock in lots of varying size to different parties. The McCalmonts thus withdraw from all connection with the company, in which they have had a heavy interest for many years. It is understood that the McCalmonts continue to hold a large amount in the bonds of the company, and that their future action will be in accordance with the fact that their interest is that of large creditors only.

The Receivers' statement for December, the first month of the fiscal year, is as follows:

	1881.	1880.
Gross.		
Railroad traffic	\$1,738,933.52	\$834,454.67
Canal traffic	33,038.17	18,066.68
Steam colliers	71,677.20	43,708.14
Richmond barges	7,519.84	1,115.16
Total	\$1,850,888.73	\$870,611.31
Coal & Iron Co.	1,380,738.55	66,931.23
Total, both Cos.	\$3,231,627.28	\$937,542.54

* Deficit.
 The increase for the Railroad Company in net earnings was \$30,918.59, or 67.5 per cent., and for both companies \$397,085.89, or 73.5 per cent. The traffic reported is as follows:

	1881.	1880.
Passengers carried	926,608	751,316
Tons merchandise	586,922	436,211
Tons coal	700,345	518,231
Tons coal on colliers	47,035	41,990
Tons coal mined:		
By Coal & Iron Co.	383,939	209,223
By tenants	129,504	112,072
Total mined	513,443	321,295

All branches of traffic show an increase. The increase in coal mined by the company or its tenants was 192,148 tons, or 60 per cent. All the branches of traffic show a considerable gain.

It is understood that the management is not now averse to some agreement for the regulation of coal production and the limitation of tidewater shipments.